JULY / AUGUST 1991

PW

PRACTICAL WINERY & VINEYARD

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Capsule options to tin/lead. Photo by Fred Lyon

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FREE RUN

What's in the crystal ball?

The Hambrecht & Quist Wine Industry Forum held in San Francisco, CA, in early May included the fourth annual Wine Industry Financial Survey conducted by Deloitte & Touche. While 110 wineries responded to the financial survey, 91 producers responded to several outlook-for-the-future questions. Deloitte & Touche report these outlook responses:

Will the winery price segment case sales change in 1991?

Ninety percent of super premium red wine producers predict a sales increase and 85% of producers expect an increase in super premium whites. Premium red wine sales will increase or be flat, said 91% of producers, while 83% forecast increased or flat sales for premium white wines. An increase is predicted by 81% of ultra-premium red wine producers, and 75% of ultra-premium white wine producers expect an increase. Sales of jug red and jug white wines will decrease, said 54% of producers.

Will the winery price segment case sales change in 1991-1993?

Sales increases of 7% or greater are predicted by 59% of producers of super premium and ultra-premium red wines. Similar increased sales are expected by 58% of super premium white producers and 54% of ultra-premium white producers. Only 46% of premium red producers and 33% of premium white producers forecast sales increases of 7% or more. Flat sales or decreases are predicted by 86% of producers of jug red and jug white wines.

Will winery varietal sales change from 1990 to 1991?

Increased Chardonnay sales of 7% or greater are predicted by 56% of producers. Equal Cabernet Sauvignon sales increases are expected by 52% of producers. Sauvignon Blanc sales should increase, said 58% of producers, and Red Zinfandel sales will grow by 1-6%, predict 42% of producers. Pinot Noir sales should increase 4% or more, said 63% of producers. Sparkling wine sales will grow by 10% or more, predict 47% of producers, while 26% expect flat sales. Producers forecast flat sales for White Zinfandel and other blush wines.

How will winery varietal sales change from 1991 to 1993?

Increased Chardonnay sales of 10%+ are predicted by 60% of producers. Similar increases of Cabernet Sauvignon sales are expected by 54% of producers. Pinot Noir sales will grow by 10%, said 49% of producers. Red Zinfandel sales will increase 4-6%, predict 43% of producers. Sparkling wine sales will increase 10% or more, said 35% of producers, while 35% of producers forecast flat sales. Minimal growth is predicted for Sauvignon Blanc, White Zinfandel, and other blush wines.

Rank the following winery marketing tools from first to eighth in importance.

#1 wine writers; #2 price allowances; #3 public relations; #4 trade tasting; #5 tasting room; #6 direct mail; #7 vintner association activities; #8 advertising.

As a percentage of total 1990 acreage in production, what winery or grapegrowers vineyard acreage will be replanted?

In 1991, 93% of producers predict that 10% or less acreage will be replanted.

Between 1991 and 1993, 65% expect 10%

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LETTERS

Dear Editor:

*This letter is not meant to encourage a volley of response. Regarding the "education of wine spokespersons" comment in the March/April'91-***PWV** *Round Hill report and its subsequent reference by Daniel Wilson (President, Innovative Wine Marketing, Inc.) in the May/June'91-***PWV***, we only wish to respond with a resounding `Bravo.'*

Our role as reporters was to tell the Round Hill marketing story and to quote winery spokespersons. Arguing the wine writer's position was not in order at the time.

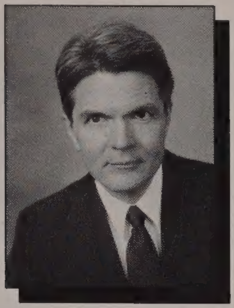
Since it is now, however, here goes:

The nationally published wine press is not writing from a vacuum. Most writers rub shoulders with consumers as well as industry spokespersons. They are not out to bash the industry. They are concerned about wine enthusiasm because that's how most of them started writing about wine.

If anything, the U.S. wine writers attempt to clarify where confusion exists in the industry. If they point out confusion, it's because it exists.

Thanks, Dan, for encouraging the wine industry to start paying attention to journalist's views of their products. Your confidence is appreciated.

Eleanor and Ray Heald
Contributing Editors-PWV



R. Courbin Houchins

More on labor contracts; further decline of the law of contracts observed

This continues the May/June'91 **PWV** column topic of labor contracting issues and adds a couple of news items on state laws affecting winery/distributor contracts.

Where's the monkey?

According to one popular management theory, business administration is a matter of off-loading monkeys so they perch on someone else's back.

Labor contracting offers the advantage of putting an entire package of troublesome tasks onto the labor contractor's shoulders. The main purpose of this column is to note some issues that still have to be dealt with by the owner of the grapes.

Holding the bag

Most states require that labor contractors hold licenses and either post a cash bond or obtain a bond from a surety company.

Attorneys differ on how much information they want their clients to have about compliance or noncompliance by labor contractors, and you should certainly consult your legal adviser regarding your own procedures.

Most will agree that at a minimum you should examine and take a copy of the contractor's license before entering into the labor contract, and to check with the licensing authorities to be sure that it is current and that the bond is posted. In some states it may be advisable to obtain copies of wage payment and withholding records from the contractor.

Dealing with an unlicensed labor contractor or one who has allowed his bond or worker's compensation insurance to lapse can expose the party obtaining the services to liability for unpaid wage and worker's compensation claims, and to civil penalties. At least in California, before making a deal I would want to have a certificate of worker's compensation insurance with a continuing right of notice of cancellation, since the courts have permitted a worker's compensation claimant there to recover from the farmer.

As noted in the previous column, the labor contractor's bond is principally to secure payment to the workers, and perhaps repayment to you for any wage advances you may make. State law may or may not permit a crop owner to seek payment under the bond for default on the labor contract. Note, however, that the time period for bond claims can be quite short, and if state law requires you to reduce your claim to judgment before collecting on the bond, you will have to scramble as soon as the default occurs. Also, the amount of the bond is often set by statute or regulation at a figure inadequate to compensate all claims.

Compliance issues

The first compliance question is always: Are they really the contractor's employees?

If you supervise the workers directly, an issue might arise as to whether an employer/employee relationship exists. Have a written contract that makes the status and the supervisory authority clear, and keep a copy of it until your attorney says it can be discarded.

The second question is to what extent you should monitor contractor's compliance with legal requirements.

Consult your legal adviser before making any effort to discover things that are not readily apparent to you, unless state law imposes an affirmative duty to do so. On the other hand, some items, such as notices required to be posted where employees can see them, are so obvious that you will have knowledge of compliance or noncompliance, like it or not. Your procedures should cover what action you will take when violations are apparent.

Defacing the law books

From time to time I rail against the so-called franchise laws that distributor lobbies are able to write into state commercial contract law.

It is a futile protest. I doubt anyone is under the misapprehension that they are good laws. They are passed solely as a benefit to an interest group that is able to influence legislators —largely because being written into a distribution scheme by law, whether or not one adds value to the product, makes for enough spare time to talk to politicians and the ability to contribute to their campaigns.

This season has produced two new franchise states. The good news is that they are not markets that are likely to make or break any winery: Arkansas and Montana. The bad news is that each time a legislature enacts one of these graffiti in the law, it gives apparent legitimacy to a proposal in another state.

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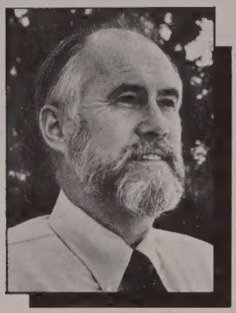

D.R. Storm, Ph.D, P.E.

Wine perks for sheepherders

Work assignments in the high desert plateau country of Nevada and Utah over the last 25 years have put me in periodic contact with an army of Basque sheepherders and their canine helpers.

The Basques make the best sheepherders and they move their wooly flocks on a deliberate route from one grassy range to another throughout the year. Our winery (Winters Winery) received a telephone inquiry from a principal of a large sheep operation in Northern Nevada. The request was for 400 gallons of red table wine (a year's supply of trail beverage for 120 sheepherders!)

During the conversation, I satisfied my curiosity about the wine and gustatory habits of Basque sheepherders by learning that:

- *Wine is furnished gratis by the owner of the sheep operation;*
- *The average sheepherder quaffs a hearty 5 liters of red wine per week;*
- *Re-provisioning of herders is infrequent and the trail diet consists of lamb, ewe milk cheese (made on the trail) and sheepherders bread.*

The rugged outdoor life (lots of hiking) and the uncomplicated food and wine diet seem to maintain the men of mixed French and Spanish ancestry in a very healthy condition. I don't think I ever saw a sheepherder that was even slightly overweight.

All of the herding is performed by the dogs, but the sheepherder uses a lot of nervous energy just worrying about the welfare of his flock and that he won't run out of wine before winter. Seems like a great opportunity for the truth-seekers on wine, diet and longevity to expand their data bank and to give food faddists, diet formulators, and trendy restaurant creators new ground to plough.

(P.S. I didn't get the contract for the 170 cases of red wine — "Too much oak," said the sheepherders' appointed wine judge.)

Rotorooter and beyond; Utility maintenance services by contract

When construction of a new winery nears completion, the last task of the utility designer is to prepare an operation and maintenance (O&M) manual for use by staff to ensure trouble-free operation and performance, and to provide a continuously-updated reference book to help bridge the information gap when staff changes occur.

The manual (usually, in a 3-ring binder format), includes descriptions of all systems and subsystems, manufacturer's recommended maintenance schedule, parts lists and usually a reduced scale set of record (as-built) drawings.

Past **PWV** columns for this department have described in detail the use of the manuals and how to make the O&M document a dynamic tool for day-to-day operations and troubleshooting.

The problem

Most wineries large and small are quite able to operate their utility systems with in-house staff and call upon outside professional help only when specialized services are required, *i.e.* submersible well-pump repair/replacement, refrigeration, and electrical system malfunctions.

There is another alternative that has emerged in the last decade that seems to offer economical, technical assistance to wineries with utility systems with above average complexity — contract maintenance services.

In my experience, new winery sites developed in the last five years in major

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California wine growing regions, tend to be more difficult topographically speaking and utility service systems — as a result, become more complicated. More pumping (water and wastewater) is required and much greater system reliability is being mandated by responsible public agencies, the wineries, and certainly neighbors.

The contemporary mind-set of many neighbors manifests itself in less tolerance of noise, odor assaults, flooding, and unsightliness, than just five years ago. What all this means is that wineries have to "tighten up their utility system operation."

What can utility maintenance firms do?

Help for wineries can be as simple as an overseeing role which might include a highly experienced water system or wastewater system operations specialist who could work closely with the winery maintenance staff personnel to fine-tune systems that aren't necessarily getting proper attention.

More utility management responsibility can also be assumed by the maintenance services contractor up to and including staffing and operation on an annual basis or possibly for critical times, such as crush, when systems are operating at or near their peak design capacity. In summary, the three possible categories of service arrangement are:

- *Contract Technical Assistance* (Winery staff technical guidance, training and augmentation.)
- *Contract Management* (Maintenance services firm provides staff operators and manages all systems under winery's control and administration.)
- *Contract Operations* (Maintenance services firm assumes full responsibility for staffing, management, training and guarantees system performances.)

Qualifications and organizations

Service maintenance firms both large and small generally draw their personnel from a pool of state certified operators (water supply and wastewater), who augment their regular income as operators of municipal facilities by working part-time or off- shift periods as a consultant. Other highly qualified individuals are drawn from the ranks of retired utilities operators.

If the candidate's experience is industrial (other than wineries), some skills in the maintenance and proper operation of refrigeration and fire protection water supply systems may often come along as a secondary benefit.

Many large consulting firms have established operations divisions, which handle contract operation and maintenance assignments for large industrial and municipal clients.

In seeking outside maintenance services help, it would be well to have a firm or individual that had some knowledge of winery production facilities. One such firm in the San Francisco Bay Area is Gary Phillips & Associates, based in Fairfield, CA, tel: 707/422-9955. Phillips has operated winery systems in both Napa and Sonoma Counties.

Who Is Available?

Contact the California Water Pollution Control Association, PO 579, Lafayette, CA 94549. They sell a bi-annual (1990-1991) membership directory for $20.00, which contains company names, addresses, and telephone numbers of firms in the contract operation business with branch offices in major US cities. ■

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IN THE CELLAR

Jake Lorenzo

The windows in Chuy's Burrito Palace were steamy. Condensation ran down in rivulets and collected in tiny puddles on the sill. The smell of frying chorizo filled the air. Like a bear after a long hibernation, I shook out of my jacket and sat in my stool, Jake's stool, waiting.

Chuy banged through the swinging kitchen doors, steaming plate in each hand, did a cha-cha pirouette, whistling La Bamba, and dropped both dishes with a crash when he saw me.

Shock melted from his face as a long, slow grin spread from ear to ear. Ignoring the broken crockery, and deftly stepping through the eggs, he danced over to the coffee and poured two cups. Putting them down in front of me, he reached under the counter and brought up the bottle of Hornitos. A hefty shot went into each cup.

"Four months, amigo," he said, "I thought you were dead."

"Sorry, Chuy, I got lost in free America."

Chuy nodded, then smiled again. He resumed La Bamba and started cleaning up the mess, interrupting only to yell in Spanish at two complaining customers that if they didn't feel like waiting, then their impatience must be genetically linked to the rapidity with which their fathers had performed the act that conceived them.

Spanish is such a romantic language.

Free America was one of my discoveries. I had gone to New Orleans for Mardi Gras and had stayed through Jazz Fest. Of course a lot of that had to do with a lovely young southern belle who found Chuy's accent unbelievably erotic, but Chuy felt that New Orleans was the last bastion of tolerance in these United States.

Drinkers are no longer living in the land of the free. Not only is it a sin to drink and drive, but merely taking a drink now carries a stigma.

Try to buy a beer at an A's baseball game. Not only do they force fans to miss large portions of the game while waiting in long lines for a beer, but they insist on humiliating you, by forcing you to show ID, no matter how old you are. Speaking of humiliation, have you seen the poor people who are cursed with the smoking habit, jammed into the smoking alcoves trying to watch the game on monitors?

Heaven protect us from those trying to protect us from ourselves.

New Orleans is drinkers' heaven on earth. It's the land of drive-through frozen daiquiris. It's a town where it's still legal to drink a beer in your car. Drinking on the streets is fine as long as your beverage is in a to-go-cup.

In California, when someone has too much to drink and gets a little wild, they can expect recriminations from all their friends the next day. "Boy did you tie one on. Maybe you should go to a de-tox center. How can you live with what you did?"

They completely ignore the fact that, in most likelihood, the guilty party doesn't remember what he did anyway. That's why a New Orleanian will simply say, "You certainly enjoyed yourself last night," or "You were having a good time."

In New Orleans, every person has equal rights. It's a unique concept. The smoker has the same rights as a non-smoker. The drinker has the same rights as the teetotaler. The tourist has the same rights as the locals. (But the locals ain't about to wait in line at K-Paul's when they can eat better, nicer, cheaper, and with fine wine at plenty of other restaurants.)

New Orleans understands the concept of voting with your dollars. If they like something, they go there and spend money. If things don't live up to their standards, they don't go back, nor do they mourn that business' demise.

New Orleans has an attitude that exists nowhere else in America. (In fact, the only other place it ever existed in America was in draft boards toward the end of the Viet Nam War.) Nothing, absolutely nothing shocks a New Orleanian. Nothing you do, say, wear, or don't wear freaks them out. They may comment on your style, but they don't make judgements.

More than that, New Orleans is a town that likes itself, and accepts itself for what it is. People in New Orleans are loyal. It's a real pleasure to sell wine there. Buyers taste the wine, and if they like it, they buy it. They put it on their lists and they sell it, year after year. They enjoy building relationships with wine people.

Busy, famous chefs love to stand in their kitchens tasting wine with you. After work, around one or two in the morning, they're more than willing to meet you in a club, hear some music, and drink some wine.

In New Orleans, wine ain't no crime.

The time is right for drinkers to revolt. Wine drinkers are going to have to lead the way. This is a call to arms. I'm tired of telling people that wine is the beverage of moderation. Wine is the beverage that goes best with food. If you like to eat and drink, then wine is what you should be drinking. If the wine is so good that you just keep drinking bottle after bottle, then go ahead on 'cher', Jake likes to see you having a good time. ■

CORK EXPERTS SHARE RESEARCH AT SEMINAR SPONSORED BY CORK ASSOCIATES

Left: T.H. Lee, Center: Jordi Cata, Cork Associates, Right: Jean-Michel Riboulet

Cork tastes

By Jean-Michel Riboulet
Director, Center for Improvement of Quality in Oenology (CEVAQOE)

Are cork stopper tastes more common today than before? Probably not.

But there has been a change in wines — they are cleaner, more technically correct, and more subtle, with less common abnormal odors and tastes. This change towards improved mastery of wine, coupled with the increase in the average consumer's knowledge, leads to a finer perception of flavor defects, whatever their origins.

Any modification in aroma or taste, or any pronounced characteristic of the wine will be perceived as a defect. This is the case with so-called cork stopper tastes. The higher the price on the bottle of wine, the less defects a consumer expects to encounter.

Given this background, how can we achieve better results from corks, with regard to aromatic inertness?

Indeed, cork has not one, but several types of tastes, organoleptic nuances, and appearance. The different tastes include authentic stopper; cork-wood; mold; flavors associated with 2,4,6-trichloroanisole (2,4,6-TCA); and tastes external to the stopper.

'Authentic stopper taste' is rare and is characterized by a potent, rancid, butyric taste which makes the wine undrinkable. It derives from the so-called 'yellow spot' usually found in cork harvested from the foot of trees growing in wet regions.

Reproduction of this taste in the laboratory with corks affected by 'yellow spot' has not been reliable. It appears that the level of cork degradation comes into play. Pes and Vodret (1971) in Sardinia, attributed this type of taste to the growth of a higher fungus, *Armillaria mellea*, on the cork. Whatever the cause, this defect is found infrequently.

Flavor of the cork-wood is more common. Cork is not inert and may pass on to wine some elements which influence organoleptic characteristics. These flavors may be transitory or they may persist.

If sensory perception does not distinguish between substances derived from the cork and original substances from the wine, the result is not necessarily negative. So, would it not be possible to talk of a positive, clean, cork-wood contribution to the organoleptic characteristics?

Rigaud et al. (1984) detected about 50 volatile compounds naturally present in cork, the majority of which I have previously

Continued on page 16

Cork taints

By T.H. Lee & R.F. Simpson
Australian Wine Research Institute,
Glen Osmond, SA, Australia

I would like to discuss the advantages and some of the problems associated with cork stoppers. We at the Australian Wine Research Institute (AWRI) have spent much effort on cork and the problems associated with cork, but we still have a lot to learn about this interesting natural material.

I encourage the excellent exchange of technical information between the wine industries of the world. We and the consumers will all be the losers if this exchange is halted or restricted.

There appears to be a rather belated recognition by the world of wine that we have a serious taint problem with a proportion of corks and to a lesser degree with oak. The Australian wine industry and the cork suppliers have recognized the cork taint problem since the late 1970s and have funded a significant anount of research, first at the University of New South Wales in Sydney, and more recently at the AWRI in Adelaide.

I gave some of the first results of this research at the 1982 annual meeting of the American Society for Enology & Viticulture in Anaheim, CA. While as an industry we appear to have discovered the tainting problem during the 1980s, I suspect that it has been with the industry since the advent of the cork stopper — the earliest paper on goût de bouchon cited by Dr. Jean-Michel Riboulet dates back to 1904.

In working on the cork taint problem and other taints in wine, the AWRI now has a highly experienced staff, has accumulated sophisticated instrumentation, and has developed an array of analytical techniques to be able to resolve most of the taint problems thrown at us. We are generally able to identify the compound responsible for the taint and often the source of the taint.

Taints with oak have been a recent phenomenon and you could ask, why mention taints in oak at a seminar on cork? It is because people generally associate moldy/musty off-flavors in bottled wine with the cork, whereas we have been able to demonstrate that in some instances oak is the source of the off-flavor.

I wish to acknowledge the efforts of my former colleague, Professor Graham Fleet and our students Dr. Craig Davis and Noelene Daly at the University of New South Wales and, Jasmine Vandepeer, and Joe Amon of the AWRI staff in undertaking this research over the past decade or more.

Cork suitable for wine bottle closures is produced from the

Continued on page 10

WHAT YOU CAN'T SEE WON'T HURT YOU, RIGHT?

1000 X

WRONG! This fermenting must is spoiling.

In 1990, many wineries had problems with spontaneous growth of Lactobacillus in red musts with no SO_2 added. Originating in vineyard or winery, some species of these ML bacteria can inhibit yeast fermentation and make acetic acid from residual sugar. Within days the sweet, acetic wines may be beyond repair.

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- Add 30-40 ppm SO_2 to juice with a history of trouble.
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reproduction bark of the cork oak *Quercus suber*. The cork oak grows predominatly in countries near the Mediterranean, with Portugal being the major producer of cork and corks.

Two major problems that we experience with corks are leakage and off-flavor or cork taint. We need to solve these problems, particularly as the consumer continues to associate a cork with quality wine.

The leakage problem leads to another problem of corrosion of the tin/lead capsule, which can often result in a greatly increased lead content of the wine in the glass. Large users of cork in the Australian industry believe that leakage is not nearly the problem of several years ago with improved coatings and quality control procedures.

Cork taint in wine is usually detected and recognized as such by people in the trade. The consumer, however, does not easily recognize the taint. Much to the disappointment of the winery concerned, the consumer will probably not buy the affected wine again because the particular bottle did not taste as good as the last bottle.

Australian wineries are increasingly resorting to litigation when confronted with the supply of tainted corks. Over the past decade in Australia we have pursued two approaches to minimize the problem of cork taint in bottled wine:

1. We have examined the microbial ecology of cork — this approach has been limited obviously to corks after their arrival in Australia, so we can tell you little about the microbial ecology of cork in the forest and during the production process in Portugal.

2. We have studied the nature and mechanism of formation of the compounds in wine responsible for the off-flavor derived from cork.

Microbial ecology of wine corks

The microbial ecology of corks refers to the distribution and nature of the microflora of wine corks and we have found that it shows great variability. Molds are the major microorganisms found on corks imported into Australia. The distribution of molds in 25 individual corks randomly selected from a bale of 10,000 corks will show great variation in the number of molds per cork.

The molds we have isolated from corks and identified to a genus and sometimes to a species level include: the genera *Penicillium, Trichoderma, Paecilomyces, Cladosporium, Mucor, Aspergillus,* and *Rhizoctonia.* Bacteria were largely absent on corks except for quite high levels of *Bacillus.* Yeast genera identified included *Rhodotorula, Cryptococcus, Saccharomyces* and *Candida.*

For obvious reasons we have worked with corks after their arrival in Australia. However, there are a couple of other microbiological points worth mentioning. The English medical researcher Lacey showed that the environment, particularly the air, around and in the cork factories in northern Portugal is heavily contaminated with mold spores, and second, we have shown that the boiling process does produce a practically sterile slab of cork.

Thus our microbiological studies indicate that corks generally carry a high load of molds in *spore form* which can grow rapidly if conditions of water activity and temperature are appropriate. Such growth may occur at any time during the chain of production, transport and storage of the cork, but I suspect that the introduction of the transport of cork in sealed containers has not helped.

Compounds responsible for cork taint

For more than a decade, the Australian wine industry has experienced wines with varying levels of cork taint. That is, the proportion of bottles affected is highly variable and the intensity of the taint can range from a dulling of the wine to an aroma that is intensely musty/moldy.

Furthermore, there is great variation between individuals in their sensitivity to cork taint. As already indicated, the taint in wine is largely detected and recognized by industry personnel, wine writers and by judges at wine shows — few bottles are returned by consumers.

It is very difficult to provide a precise estimate of the proportion of bottles affected. *The Wine Spectator* in April, 1990, reported the range at 0.5 to 6%; 2% is commonly quoted and often accepted. However, I have seen a much higher incidence of taint in batches of wine.

Recently, I tasted 46 bottles of a red wine randomly selected from 23 pallets of a single bottling. 10% of the bottles were definitively corked and another 10% to 15% had a recognizable mushroom-like character. Needless to say, the winemaker was not impressed. However I wonder what proportion of these affected bottles would be returned by the consumer in the context of an enjoyable meal at a restaurant?

Aroma analysis of wines with 'cork taint'

We have found six compounds that appear to be present at above threshold concentration in a range of 'tainted' wines and their associated corks. They include 2,4,6-trichloroanisole (TCA), 1-octen-3-one, 1-octen-3-ol, 2-methyl-isoborneol, geosmin, and guaiacol.

In the many wines examined, TCA was the major component responsible for off-flavor, but the other five compounds were considered the major cause of taint in some of the wines. Sometimes two or more of these compounds appear to be present at above threshold concentration. Subsequent examination of a large number of wines from many countries by instrumental and sensory techniques clearly indicates that TCA is the most important compound responsible for cork taint.

TCA has the most intense aroma and according to carefully conducted sensory tests by Duerr in Switzerland, it is possible to detect TCA in red wine at just over 1-ng/L or 1-ppt or, by analogy, one second in 320 centuries. However, 1-octen-3-one, 2-methylisoborneol, and geosmin are also unusually aroma-intense compounds capable of producing off-flavors at extremely low concentration.

For example, one drop of 1-octen-3-one or about 15 mg, is sufficient to contaminate 7,500 litres of wine, based on a concentration of 200 ng/L which corresponds to 10X the flavor threshold concentration of this compound.

Although at higher concentration, 1-octen-3-one, 2-methylisoborneol, and geosmin are readily distinguishable from TCA, at lower concentration, they are capable of causing a musty/moldy aroma and of producing a dulled flavor in wine.

Thus I think that TCA is not the only cause of cork taint. Instead, several aroma-intense compounds produced by microflora in contact with the corkwood or cork cylinders are capable of causing a cork taint in bottled wine alone or in conjunction with TCA.

Microbial transformation of 2,4,6-TCP to 2,4,6-TCA

Having identified some of the major tainting compounds, the next step was to determine the mechanism by which they are formed in the cork. Thus we examined the microbial transformation of 2,4,6-trichlorophenol or TCP to TCA as previous work on a moldy taint in chicken meat had indicated that some molds were able to transform chlorophenols to chloroanisoles by the process of methylation.

Chlorophenols are good biocides and can be detoxified by molds through this transformation process. We were also able to demonstrate that the hypochlorite bleaching of corks leads to the production or, at least, an increase in the content of TCP in corks. In the absence of microbial growth after hypochlorite treatment,

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the TCA content of bleached corks does not increase. However, these corks have a higher risk of developing a taint.

We tested the ability of the molds previously isolated from corks imported into Australia to transform TCP to TCA in a 'model system'. The model system was granulated natural cork that had been sterilized by gamma radiation. The system was inoculated with the individual mold isolates and incubated with and without added TCP.

After the incubation period, the aroma of the flasks was assessed, and the content of TCP and of TCA in the cork was determined by gas chromatography-electron capture detection.

We found that the molds metabolized most or all of the TCP (74% to 100%), but the production of TCA was variable (0 to 23%). Some molds produced a cork taint aroma, which correlated in many instances to the higher concentration of TCA found in the cork. However, all six of the taint compounds detected in the wines previously surveyed were also found to be present in the granulated cork incubated with and without TCP and the mold isolates.

Thus, besides the conversion of TCP to TCA, we found that individual molds could produce off-flavors growing on the cork whether TCP was added or not. Thus this model system work provides good evidence that the proposed mechanism of formation of these taint compounds is a plausible one. However, we believe that it is not the only mechanism operating.

Contamination of corks during shipment

Another mechanism is the contamination of corks during shipment. Cork cylinders have a large surface area with waxy materials present on the surface and thus are capable of absorbing aromas from the surrounding air.

Treatment of corks with paraffins and silicone oils to waterproof the cork, and to allow easy insertion and extraction from the bottle, increases the susceptibility of corks to certain aerial taints.

A good example of aerial contamination resulted in the tainting of champagne corks during transport to Australia. The corks were sealed in polyethylene bags packed in cardboard cartons. The cartons at floor level in the hold of the ship were contaminated with a fatty residue, and the corks in these cartons were badly tainted.

Analysis by gas chromatography/mass spectrometry (GC/MS) of a grease-affected carton revealed a series of alkyl benzenes, TCP and $25 \mu g$ of TCA/g cardboard. The same alkyl benzenes and between $1\text{-}8 \mu g$ of TCA/cork were present in the tainted corks; no TCP, however, was detected in the corks.

Now the detective work: the alkyl benzenes are residual, unreacted starting materials in some commercial detergents, and are found as environmental contaminants. On checking with potential suppliers, it was found that TCP-based fungicides are still available and in use.

Consequently, it could be deduced that the wooden floor of the hold had been treated with a detergent and a fungicide. Microbial activity would have transformed the TCP to TCA, which would have migrated to and been absorbed by the corks.

Thus we believe that the major causes of cork taint in Australian wine can be determined from our work at AWRI. The relatively large quantity of TCA in some corks, and the lack of comparable quantities of chloroanisoles derived from chlorophenol biocides, indicates that 1) microbial growth on hypochlorite-treated corks during shipping,

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and 2) aerial contamination, are the prime causes of cork taint in Australian wine.

We have detected pentachloroanisole and 2,3,4,6-tetrachloroanisole in corks, but the content of these two compounds has been low compared with that of 2,4,6-TCA.

Chlorophenols present in trace quantities throughout the oak forests, even in the absence of spraying, can lead to the production of these chloroanisoles. Overall, TCA from this source appears secondary in our experience but could be expected to become more evident if hypochlorite bleaching of corks was phased out.

We have indicated that other off-flavor compounds, including geosmin, 2-methylisoborneol, and 1-octen-3-one, are produced by molds and are capable of causing cork taint. Even in the absence of hypochlorite, some corks are capable of tainting wine and the origin of the taint may reach back to the initial processing steps; the abundant mold growth on the cork slabs after boiling, as shown by our studies, would be conducive to the production of volatile off-flavor compounds.

Techniques to minimize cork taint

What techniques can minimize cork taint and what quality control procedures are being applied? Similar to many complex problems, there is no easy or simple solution. We believe that many changes need to be made in cork production and the distribution chain from the forest to the bottle neck.

Improvements need to be made in Portugal and Spain or at least investigated. There are signs that such work may be about to happen. However, we believe that the single most important improvement that can be made is to prevent mold growth on the corks, particularly after processing.

Most of the molds isolated from corks imported into Australia showed moderate to strong growth at a temperature between 10° and 20°C at a water activity of 0.97; some of the mold isolates grew at a_w 0.85, two isolates at a_w 0.80, and none at 0.75. Water activity is a measure of the moisture available in a biological system for microbial growth.

This is critical information, because control of the water activity of corkwood after harvesting, during the processing stages, and finally during storage and distribution of the corks provides a simple and effective means of preventing mold growth.

A water activity of less than 0.75 in corks supplied to the winery satisfies their requirements in most instances. An a_w0.75 corresponds to a moisture level of approximately 8% v/v in the cork which is at the higher end of that required for good performance with modern corking machines.

Quality control of corks

One further objective of AWRI research was the development of a test that could detect the presence of tainted corks in a shipment. Many Australian wineries are using variations of a test procedure in which a sample of corks is either soaked in an alcohol solution or a neutral white wine for a period of time after which the smell of the solution or the corks is assessed by experienced personnel.

Alternatively, a little water is added to the corks and the smell of the humidified cork is assessed either after an incubation period or almost immediately.

One drawback of such tests is that the

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sensitivity of the test will depend on the sample size. The sensitivity will also depend on whether many corks in the batch are tainted at a low level or a few corks at a high level. Obviously the tests can be done on a composite sample or on individual corks.

Another approach is to take a headspace sample of the bag of corks and analyze for the presence of TCA and accompanying mold metabolites by GC-MS. Few wineries have such instrumentation and the same drawback would largely apply.

Oak as a source of taint in wine

What about taints from new oak barrels, which Australian and American wineries are using in large numbers? In recent years, AWRI has examined several wines that have become tainted from contact with oak barrels. We have been able to identify the tainting compounds, but often we can only speculate on the source and/or formation of the tainting compounds in the oak.

As with tainted corks, the circumstances surrounding the tainting of some of the wines by oak barrels have been or are the subject of litigation.

Here are three examples of wines that became tainted from contact with new oak barrels. Possibly the most serious case of oak contamination involved a shipment of barrels which was distributed to several wineries and affected a considerable volume of wine. Some of the winemakers involved initially failed to detect the taint but on receipt of some of the wines at AWRI, the taint was quickly identified as due to chlorophenols. We had previously seen a wine strongly contaminated with chlorophenols and were able to draw on that experience.

We extracted samples of the wines and samples of shavings from headboards and staves of the barrels and the aroma compounds were subjected to GC-MS. We identified three chlorophenols in the extracts and determined the concentration of these chlorophenols in two wines and in shavings from the outer surface of staves from two of the affected barrels.

Clearly, the concentration of the chlorophenols in the two wines greatly exceeded their flavor threshold in water, indicating gross contamination. The chlorophenols caused a 'phenolic', 'medicinal', 'disinfectant-like' or 'plastic' taint in the wine. Once tasted, never forgotten.

In attempting to determine the source of the chlorophenols we can eliminate a few obvious sources.

For example, the content of chlorophenols in the shavings is too high for them to be derived from naturally-occurring phenol in the wood. If this was the case, you would expect to see other chlorophenols derived from the naturally occurring guaiacol or the cresols in oak.

We also know that the chlorophenols are major ingredients of commercial fungicides and biocides, but the compounds containing a higher number of chlorine atoms have higher biological activity and are favored in such preparations.

We also know that 2,4-dichlorophenol is a starting material for the production of several biocides including 2,4-dichlorophenoxyacetic acid and 2,4,5-trichlorophenoxyacetic acid and its presence in a shipping area is possible.

However, the composition of the chlorophenols in the wine and oak shavings and, in particular, the ratio of 2,4-DCP to 2,6-DCP (ca. 2:1) and the lack of compounds containing more than three chlorine atoms is

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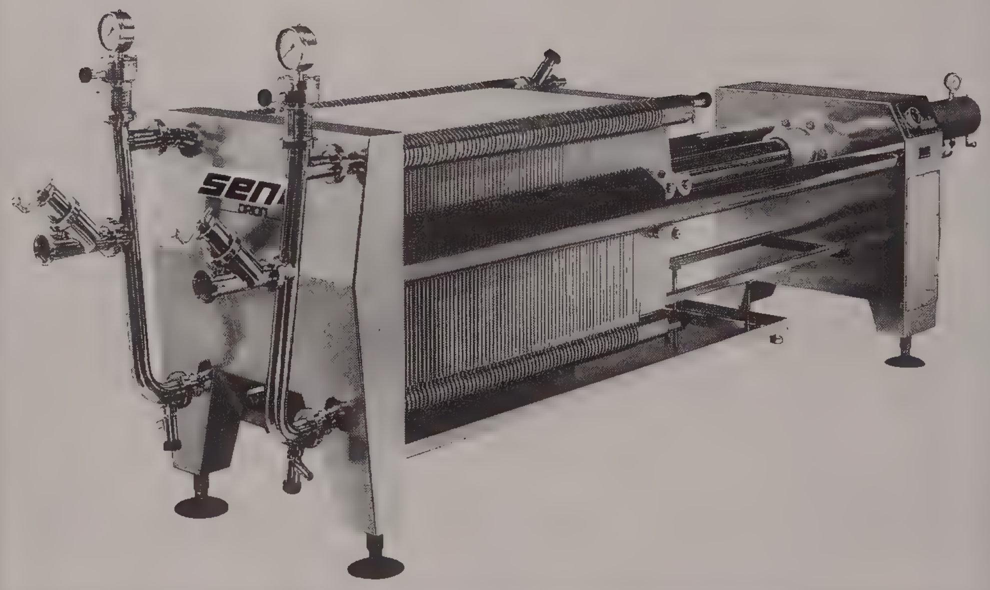

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typical of the reaction product of phenol and chlorine (or hypochlorite).

Although the circumstances leading to the contamination of the barrels could not be determined, the composition of the chlorophenols indicated an external source consistent with a synthesis from phenol and chlorine, where the concentration of chlorine was limited and insufficient for TCP to become the dominant product.

We have also seen several wines which had an off-flavor reminiscent of cork taint but which had not been in contact with cork. One such wine developed the taint during maturation in new French oak barrels.

On analysis, we found 2-methylisoborneol, geosmin, TCA and guaiacol, with 2-methylisoborneol and geosmin rated the most intense components. But we also detected some 2,3,4,6-TeCA and PCA indicating that the oak wood or barrel had been treated at some stage of processing or production with a chlorophenol-containing wood preservative. Microbial infection of the barrel would be responsible for the off-flavor compounds identified.

A final example was two wines that had developed a musty/moldy off-flavor during maturation in oak barrels; TCA was the only chlorophenolic substance detected in these wines. The wines contained 57 and 109 ng/L of TCA, respectively, accounting for the readily discernible off-flavor.

Two possible sources of the contamination can be considered: the barrel may have become contaminated either with TCP followed by microbial conversion to TCA or by the absorption of TCA during shipment as occurred with the champagne corks.

Conclusion

The wine industry is not the only industry that suffers from these types of tainting problems. The food industry in general also suffers serious losses from taints caused by chlorophenols and chloroanisoles.

I would like to acknowledge the contributions that Maarse's group at the TNO at Zeist, Tanner's group at Wädenswil, and Whitfield's group at the CSIRO Division of Food processing have made in this area.■

References

1. Davis, C.R.; Fleet, G.H.; Lee, T.H. The microflora of wine corks. ***Aust. Grapegrower/Winemaker*** (208): 42, 44; 1981.

2. Davis, C.R.; Fleet, G.H.; Lee, T.H. An appraisal of the Rankine-Pilone method for testing the sterility of wine corks. ***Aust. Grapegrower & Winemaker*** (208): 56; 1981.

3. Davis, C.R.; Fleet, G.H.; Lee, T.H. Inactivation of wine cork microflora by a commercial sulfur dioxide treatment. ***Am. J. Enol. Vitic.*** 33: 124-127; 1982.

4. Daly, N.M.; Lee, T.H.; Fleet, G.H. Growth of fungi on wine corks and its contribution to corky taints in wine. ***Food Technol. Aust.*** 36; 22-24; 1984.

5. Lee, T.H.; Simpson, R.F.; Vandepeer, J.M.; Fleet, G.H.; Davis, C.R.; Daly, N.M.; Yap, A.S.J. Microbiology of wine corks. Lee, T.H.; Somers, T.C., eds. Proceedings of the fifth Aust. wine industry technical conference; Nov. 29-Dec. 1, 1983; Perth, WA. Adelaide, SA; The Aust. Wine Research Inst.; 1984; 435-450.

6. Amon, J.M.; Simpson, R.F. Wine corks: a review of the incidence of cork-related problems and the means for their avoidance. ***Aust. Grapegrower & Winemaker*** (268): 63-64, 66-68, 71-72, 75-77, 79-80; 1986.

7. Amon, J.M.; Vandepeer, J.M.; Simpson, R.F. Compounds responsible for cork taint in wine. ***Aust. NZ Wine J.*** 4: 62-69; 1989.

8. Simpson, R.F.; Lee, T.H. The microbiology and taints of cork and oak. Proceedings of the ninth international oenological symposium; May 24-26, 1990; Cascais, Portugal. Breisach, West Germany: International Association for Modern Winery Technology & Management; 1990: 653-667.

9. Lee, T.H.; Simpson, R.F. Cork and oak taints

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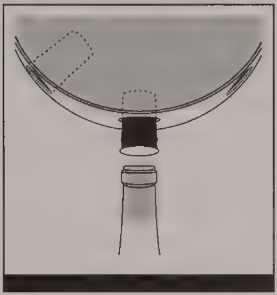

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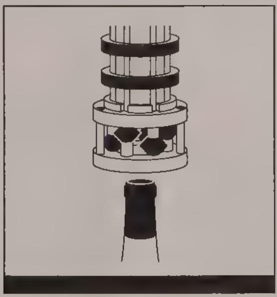

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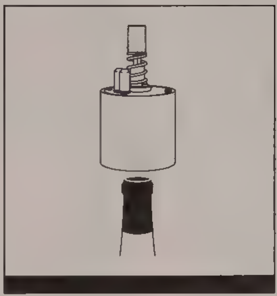

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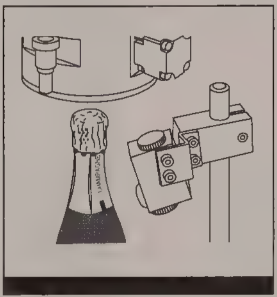

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in wine. Proceedings of the New Zealand grape and wine symposium present and future; Nov. 5-6,1990; Auckland, New Zealand. Wellington, New Zealand: New Zealand Society of Viticulture & Oenology; 1990: 43-47.

10. Simpson, R.F. Cork taint in wine: a review of the causes. ***Aust. NZ Wine Ind. J.*** 5: 288-297; 1990.

Continued from page 9

reported. Therefore, it can be concluded that the odor of clean cork-wood is due to a group of volatile compounds, some of which have been identified. The significance of each one is different from an organoleptic point of view, despite sometimes being of fairly high concentration — be it of furans (furfural, etc.), phenolic aldehydes (vanillin, etc.), phenols, or fatty acid esters.

I offer two comments on the subject of cork-wood taste: Quantitatively speaking, this migration is never the same, but it is more perceptible in a small-volume container since the concentration is higher. Choice of stopper also impacts organoleptic qualities: When the cork-to-wine contact area increases, as is the case with stoppers that have considerable perforation, the extraction of aromatic products can only increase.

A significant form of 'stopper taste' is that of various bad mold and stagnation odors. It is almost certain that these tastes are of a microbial nature, but they involve a complex mechanism in which several species and several substrates (cork, wine, etc.) come into play.

Many studies have been devoted to this subject since the beginning of this century. Specific studies include those of: Bureau (1975), Schaeffer (1976), and the major studies of Moreau (1976, 1977, 1978).

These observations show that many microorganisms are encountered alone or in groups, both on the surface and deep within the stoppers. The flora is not static; it evolves through time with indigenous species on the tree, followed by secondary contamination, until it reaches the cellar.

The topic of 2,4,6-TCA clearly cannot be avoided. It is a probable cause of tastes, but how often is unknown. We have seen that other sources of bad taste exist, and I have shown in one study of bad-tasting wines that 2,4,6-TCA does not necessarily have to be present.

Rigaud et al. (1984) showed that chloroanisoles and pentachlorophenols exist in cork before it is processed. In an important work, Maujean et al. (1985) revealed the role of 2,4,6-TCA formation by a species of Penicillium in a champagne fermenting unit. In 1978, Tanner postulated the possible formation of TCA from the chlorine used to wash corks.

To summarize, possible sources of chlorine may be grouped as follows:

- By contamination of the cork; free atmospheric chlorine; chlorinated products used to treat forests;
- By contamination of stoppers; chlorine used for washing;
- By contamination of the wine; the chlorophenols used to treat the wood; the chlorine used to disinfect cellars.

The substance is therefore liable to be synthesized either totally from a source of chlorine plus a phenolic nucleus, or from chlorophenols.

Since it is known that the proportion of corks showing TCA-taint is very small, it is clear that this synthesis is not consistent, despite chlorination of stoppers. Only a

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statistical study of the presence or absence of TCA in cases of stopper taste, would allow its frequency of occurrence to be defined, irrespective of its origin.

How to protect against stopper taste

Known causes of authentic stopper taste, *i.e.* 'yellow spot,' should be eliminated. This may require rejection of the affected barks at the bark selection stage. In the majority of cases, this is already done.

What can be done to minimize the taste of cork-wood? First of all, the wood should be selected carefully, since it is clear that the 'flavor migration intensity' characteristics may be associated with the tree and the region in which it is grown. This involves cork oak, growing conditions, and the climate of the region. This selection process is one of the points that distinguishes the work of cork suppliers.

However, the key to a decrease in cork-wood taste means a return to more traditional bark storage practices. For mainly economic reasons, the ageing period of cork-wood has gradually decreased from two years to one year, six months, or even no time at all.

The ageing of cork-bark is certainly fundamental to the mechanical qualities of the stopper, but it also plays an important role in the presence of stopper taste.

Without taking into account the intervention of molds in the appearance of 2,4,6-TCA, precautions need to be taken to alleviate mold. Such precautions should begin in the manufacturing stage, particularly with regard to cork-wood storage. Contact with soil needs to be avoided in order to prevent contamination by Streptomyces and the soil-borne organisms.

However, it should not be forgotten that there is an obligatory stage during the stopper preparation process in which the sheets are covered with molds. Greater attention must be paid to the stoppers in order that they always be in an environment which limits the growth of these microorganisms.

According to Daria Fumi and Colagrande (1988), a treatment with dry heat at 115°C for 60 minutes has proved effective in killing cork microorganisms. Such a treatment perhaps could be applied industrially to stoppers. However, I think this would be difficult both because of the thermal insulating power of cork and because of the risk of a mechanical modification.

The effect of ionization on the microflora has been known since 1901, with the sterilization of culture media by radium gamma rays. Since the governmental decree of May 8, 1970 which regulates its application in France, the list of products on which ionization is permitted has been extended.

It is mostly a matter of gamma radiation emitted by sources such as Cobalt-60 and Cesium-137. Marais and Krueger (1975) showed that a proportion of the microorganisms are destroyed with gamma rays at a dose of 3 Mrad or 30 KGy. Irradiation induces a break in the DNA chain, leading to the destruction of living organisms, bacteria, yeasts, and molds.

Bureau, a researcher in Reims, has worked for some years with ionization of stoppers by beta radiation (accelerated electron emission). Rochard et al. (1988) applied doses of beta radiation of 25 KGy to champagne stoppers and confirmed the action of this ionization on the micro-organisms, but without obtaining a significant correlation with moldy tastes.

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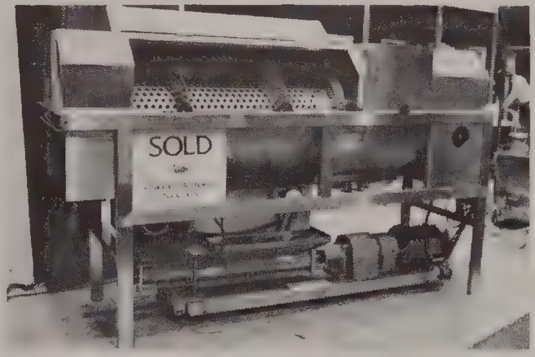
Cingano Destemmer/Crusher



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These studies invite several comments:

- Microorganisms almost always are present on cork stoppers; however, the number of viable microorganisms varies greatly and must be reduced;
- Several methods facilitate the destruction of all or part of the flora present on stoppers;
- The medical concept of sterile stoppers does not exist; it is therefore necessary to adopt the term 'low microorganism count;'
- The time at which these methods are applied does not allow elimination of all the moldy tastes since aromatic metabolites which have already been synthesized are not destroyed;
- The cost of ionization treatment must be compared with the desired result and the actual result obtained.

Even if the presence of microorganisms on the stopper is not always synonymous with 'stopper taste,' the key word must continue to be 'cleanliness.'

How can we protect wines against 2,4,6-TCA contamination? It is possible to perform traditional stopper washing without the formation of TCA. It is imperative to reduce bath concentrations and the number of washes. Replacing chlorine washes of stoppers with other methods of chemical disinfection reduces the risk of TCA formation, but does not entirely eliminate it.

What are the alternatives?

One option is to apply a coating on the stopper. This would be either a total coating or a coating on the ends of the stopper to create a barrier against taste transmission. This logical procedure has attracted much interest since the end of the 19th century. But the materials used, with various degrees of success, did not start to show good results until about 10 years ago.

However, we should not generalize and pretend that all these different coating products and different methods of application have given positive results. It is necessary for the applied films to be adherent, flexible, capable of resisting compression, resistant to the wine, and to have a long life.

To eliminate chlorine washing, studies of chemical disinfection for stoppers have brought various methods to the fore, including ethylene oxide. Peroxides also are used on cork stoppers.

Several alkaline-oxidant washing procedures, based on the idea of combining a base and a peroxide, have recently been introduced. They first appeared in Switzerland and Germany, followed by the work of Tanner and others thereafter.

What are the general advantages of these methods?

- First, reduction of the risk associated with TCA formed in the stopper;
- Bleaching, which in certain cases is more a yellowing effect;
- Disinfection, which is the desired effect.

I should also mention the action of peroxides on the cork constituents and the physical results on cork mechanical characteristics. Indeed, there is only a short step between managed attack and cellular destruction, between cleansing and corrosion.

The goal is to maintain the integrity of the cork material and not alter its compressibility properties, elastic recoil, and adherence. This does not seem to be true for all of the procedures employed, since some appear to be more aggressive and have more effect on the structure of cork. In these cases, it seems that there is a modification in the cork-glass contact, with greater wettability of the stoppers and an increase in the capillarity phenomenon.

We must also consider that there may be residues from the oxidant products, as we have seen in work by Fabre in Changins, again with differences between the different treatments.

Therefore, it is possible to use alkaline-oxidant treatments, but with care to avoid cork breakdown and peroxide interaction with wine. In seeking to eliminate one risk, it is important not to create another.

Peroxide washes thus may reduce the corky tastes, but they are not synonymous with the complete disappearance of stopper taste in the broad sense.

The so-called 'dry' washes are not true washes. For some years they have been used more, with varying degrees of success, by Spanish stopper manufacturers. Dry washes involve a double treatment which combines an alkaline-oxidant operation on the surface of the stopper, without soaking, then coating the stopper with a complex synthetic substance which is either colored or colorless.

Non-washing in the strict sense of the term — aimed at introducing a concept of the natural, ecological stopper by using clean water — does not comply with the criteria sought in washing, cleansing, and disinfection.

This is why washing in a sulphurous solution or organic acid is nevertheless often practiced. The natural concept becomes blurred, particularly when colmated stoppers are concerned. By contrast, this concept is exactly right for discs used for champagne stoppers.

Conclusion

It can be confirmed that there is not one, but several stopper tastes. A cork wood taste is most common. The frequency of occurrence of tastes associated with 2,4,6-TCA is unknown.

The aromatic intensity of the tastes varies. The fragility of wine comes into play, but also the extraction of odoriferous substances from the stoppers, a feature which varies from one wine to another.

Analytical tasting still remains one of the only means for initial definition of the taste encountered and its frequency. Deeper analysis can at present only be carried out on TCA. 'Marker substances' that are characteristic of other tastes have not yet been discovered. ■

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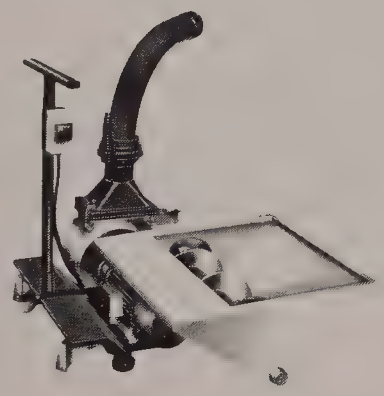

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Successful brand builders

"Hambrecht & Quist (H&Q) presented four awards to recognize entrepreneurs, managers, and their wineries who are models of brand building excellence and who are worth emulating," said John Fisher of H&Q at the Hambrecht & Quist Wine Industry Forum, in early May in San Francisco, CA.

The four brands have defied gravity in flat or falling segments and have created new wealth for their owners. They have demonstrated high growth in volume or F.O.B.s or both — what has come to be identified as brand strength. The four brand owners shared some of their insights and strategies during the H&Q Forum:

Sam Bronfman, Seagram Classics Wine Co.,Barton & Guestier

Sam Bronfman II received the award for his firm's success with the Barton & Guestier (B&G) brand. H&Q thought the awards would focus on domestic brands, but found this import brand "swimming against the tide and doing remarkable things," said Fisher.

"Barton & Guestier is a phenomenon," noted Fisher. It has grown to be the #1 French import brand in the U.S. and as the category has declined, B&G has increased share by 75% in five years. It now holds over 10% share of its category.

Scanner data shows that B&G has an 8% share of the Chardonnay market in the U.S. in the $7.50 to $9 price segment and the above $15 price point. "This frankly amazed us," said Fisher. "Barton & Guestier is no overnight success, but a result of long brand building."

How has B&G achieved it's success in the U.S. market while the category has sharply declined? "The market for imported table wines from France has dramatically declined," responded Bronfman, "losing 2.7 million cases since 1985. The many reasons include declining consumption; the growing quality and reputation of wines produced outside France, i.e. California, Italy, Australia, South America, etc.; and international trade barriers and higher product costs.

"The single most important statistic has been the decline of the U.S. dollar. The value of the U.S. dollar versus the French franc peaked in 1985, the year that French wines achieved the greatest share of the U.S. market. As the dollar weakened throughout the late 1980s and into 1990, so did French wine imports. The U.S. dollar has actually declined 40% versus the French franc since 1985."

B&G was founded in 1725 by Daniel Guestier and Thomas Barton. The Irishman and Frenchman built a large export business for French wines. Seagram purchased the brand in 1954. B&G is a negotiant who buys finished wine from growers and 'elevates' the wine through blending and ageing.

"As a brand," said Bronfman, "B&G has been able to increase its share to more than 10% of bottles of appellation controlee wine shipped from France to the U.S. In 1991, that number will be about one of nine, as we expect the category to decline while our shipments grow to almost 500,000 cases."

"Many investments have been made at the Chateau Magnol in the Haut Medoc, including a new bottling line allowing us to achieve shelf prices in the $5 to $15 range for the majority of B&G wines.

"All B&G brand marketing for the past 15 years has consistently conveyed a singular message: `Fine French wines since 1725.' This consistency is important not only in the message but in the levels of support that the brand has received. We have spent more than $20-million since 1980 to advertise and promote B&G in the U.S.

"We have also employed a wide range of programs to further develop the B&G franchise. Among these is a brand manager living in the U.S. who travels to support B&G — conducting tastings and educational seminars." The U.S. is B&G's top market. B&G's distributors play an important role in its success.

"Our desire to improve and succeed led to the introduction of a line of Bordeaux varietals in vibrant new packaging in 1990. These wines, Cabernet Sauvignon, Merlot, and Sauvignon Blanc, carry the B&G name with eye-catching labels and a competitive price position.

"Our theme in 1991 is `innovation within tradition.' Therefore, we've embarked on a complete revision of all B&G packaging to better reflect our roots in 18th Century Bordeaux."

In 1991, B&G introduced Fondation 1725, a proprietary Bordeaux brand which will be the firm's global flagship. The wines are Bordeaux blends, Meritage wine; Cabernet and Merlot for the red and Sauvignon Blanc and Semillon for the white. The brand is being launched with a transnational advertising campaign, extensive marketing and merchandising.

Don Carano, Ferrari Carano Winery

"Great brand builders have a lot in common," announced Fisher. "They have focus, innovation and usually a brand champion. Don Carano of Ferrari Carano has built one of the most recent phenomenons. Don and wife, Rhonda, had the exquisite timing of styling a focused Italian heritage brand at the take-off of Italian cuisine in the U.S. market.

"The Caranos had the devotion to quality to invest heavily in fine estate vineyards and top winemaking talents. The result is a brand which grew 71% in 1990 over 1989! Carano has earned our recognition with a Brand Builder Award."

"In 1978, Rhonda and I bought a 60-acre parcel for our second home in Alexander Valley in Sonoma County,"recalled Don Carano. We are now in business in the Alexander Valley, and if one vineyard made sense, 11 more made more sense. During that period of time, buying vineyards was a big tax benefit.

"We acquired vineyards and part of our success, I believe, is the fact that we do have a long-term, 10-year program. We are in the sixth year. We buy about 10% of our grapes for wine production. Primarily, our wines come from our own vineyards — as far south as Napa Carneros, on the mountain side, in Alexander Valley, and Dry Creek Valley.

"Our whole program was to own the vineyards which control the price and quality of the grapes. Our concept of winemaking is a blending process, as opposed to vineyard designation.

"We built the winery with that concept. We have many different size tanks, many small barrels, and barrel cellars to allow handling of the different clones of Chardonnay that come from various vineyards.

"Our winemaker makes a blend which consists of many different elements. Some elements that do not make a blend will be bulked out so that nothing takes away from the blend. The same process is used for all our wines.

"Banks look at us, you know, and say `what you are doing doesn't make sense.' Well, we explain that our underground cellar that is near completion and the villa we will build next year, are part of our overall marketing program.

"From a marketing and sales standpoint, our wines are broadly distributed. We are in 40 states and five foreign countries—and the purpose of that is we will grow. We are at

45,000 cases/year now, and our 10-year goal will be 100,000 to 110,000 cases. We grow as our vineyards mature. We are not buying grapes to increase volume or production.

"We have four varietals, Fume Blanc, Chardonnay, Merlot, and Cabernet Sauvignon, and their respective reserves. Over a period of time, we will hopefully be perceived, in the bottle, (which is the most important thing, we believe) as a fine ultra-premium wine from California.

"We're very thankful that our wines have been as well-received as they have; however, we know we are still a young winery. Our first release was the 1985 Chardonnay in 1987, followed by a Fume the next year, and our first Cabernet Sauvignon in 1990.

"To say we have a successful winery at this time, I think, is maybe jumping the gun. However, we will continue with our 10-year program and I can say to those who want to try this, ‘don't quit your second job, as it's rather capital intensive on the front end.' Thank you."

Chris Kalabokes,
Cook's Guild Wineries & Distilleries

"The success of the Cook's brand, owned by Guild, has truly defied gravity," said Fisher. "In a category experiencing decline, there has been brand growth for Cook's. Cook's shipped over 1.5 million cases in 1990, 12% over 1989. Cook's racked up a 25% average compound growth over the last five years. We are pleased to recognize the success of Chris Kalabokes and Guild with Cook's."

"The Cook's Champagne brand was founded in St. Louis, MO, in 1859," said Kalabokes. "The Schenley organization acquired Cook's and moved it to California, and it was purchased by Guild Wineries in 1971. About 10,000 to 15,000 cases/year were sold by the brand during that period. In the early 1980s, major changes occurred to the brand and market share increased each year.

"You have to start with a good product designed to appeal to your target audience to be successful. I believe this is often ignored or not given adequate attention. We designed an attractive package that, in the case of Cook's Champagne, probably over-delivered the message to the consumer.

"We believe consumers have been attracted to Cook's because of the price, package, and product, and not necessarily in that order. We have been able to enjoy certain consumer trends, such as trading up from lower-priced products.

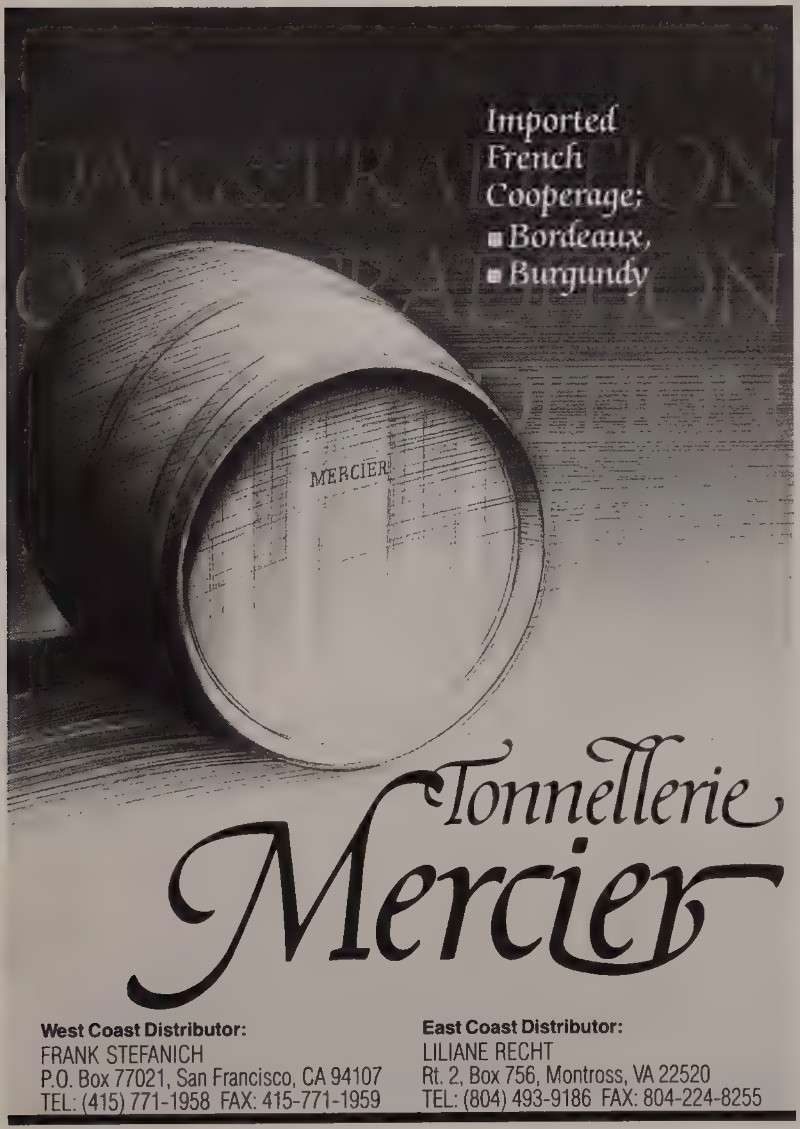
"Advertising plays an important part in any effective marketing plan. In the mid-1980s we developed a television ad that was initially utilized in regional spot advertising. In 1988, Cook's was introduced to network TV."

A print ad campaign in trade magazines is aimed at distributors and retailers for off-holiday times, and they've added radio advertising. Distributors receive a Cook's brochure, and wire racks support a Cook's display and promotional offer, such as a cruise give-away.

"Image will make or break you," says Kalabokes. "In 1988, we added natural cork to the champagne to further identify the brand's increasing image to the consumer. The ‘Grand Reserve' product is finished with a 10-year-old brandy dosage.

"The only champagne selected as a ‘hot' brand in 1990, was Cook's. In July 1990, we launched Cook's Spumanti, and shipped nearly 140,000 cases in the first 12 months." They use line extension to broaden consumer brand awareness.

"Initial response from our distributors



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"The retailer group is also looking for profit. Communicate advertising plans. That group says that they don't like to build brands, but, in reality, they do.

"From 1980-81, we produced just around 40,000 cases, growing through 1990 to 1.4 million. In terms of Cook's market share in the U.S., we had a 2.6% share of the sparkling market in 1985. In 1990, we grew to 17.5%. You do this with good people, advertising and pricing support, good product and packaging, and promotion.

"In June, we introduced varietal wines from Cook's. We know the word `reserve' is over-used, but this is Captain's Reserve: California Cabernet Sauvignon, Chardonnay, White Zinfandel, and Merlot. Our company obviously has to be a participant in the table wine market, a market that is extremely exciting, filled with new opportunity.

"The table wine market has its problems as well. We wish to take Cook's to a new level. Hopefully it will be well-received as we move forward in small markets, carefully testing every bit of the way."

Allen Shoup, Stimson Lane, Ltd. Columbia Crest Winery

Allen Shoup, President and CEO of Stimson Lane, accepted a Brand Builder Award for Columbia Crest. Stimson Lane owns Columbia Crest Winery and Chateau Ste. Michelle in Washington State, and Conn Creek and Villa Mt. Eden wineries in California.

Columbia Crest grew from its birth in 1985 to 500,000 cases in five years. From one blended varietal white wine to 16 distinct varietals, it grew 40% alone in 1990.

"This performance may speak for the marketing savvy of Shoup and his team," said Fisher, who called Shoup 'a great communicator of his brand's focus.' "It may speak for the merit of having U.S. Tobacco as a parent, who has the financial where-withall. We are proud to recognize Shoup and Stimson Lane's accomplishments."

"We started the concept of creating Columbia Crest Winery," said Shoup, "with a major understanding that I think many people in our industry wish they would have considered before they got into this business: The world didn't need another winery. There are 1,300 wineries in America; maybe 20,000 wineries throughout the world. Most of those wineries are trying to sell to the American market.

"If you are going to create a winery today, clearly you have to give it a reason for being. I think distributors and retailers are sophisticated enough that it can't simply be contrived.

"We developed a 2-hour multi-media presentation to answer any questions distributors would have as to why they should start working on another brand. This delayed the roll-out of our brand. We had to convince each distributor that there was an importance to this new winery.

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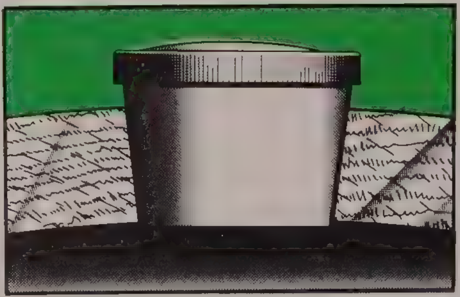

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We started with the fact that we knew a lot about the Columbia Valley, which by 1985 had established itself as a major viticultural region producing top-quality wine.

"Only one major winery was being represented by that region, Chateau Ste. Michelle. So it begged for another major brand.

"We have a 450,000-sq. ft. winery in a 2,000-acre estate vineyard. The barrel room has over 11,000 small French oak barrels, allowing us to make the kind of Chardonnays, Merlots, and Cabernet Sauvignons that America wants today.

"We are convinced, because of the uniqueness of the Columbia Valley and our enology staff and winemaking facilities, that we will make top-quality wine.

"We had also invested, through our Chateau Ste. Michelle Winery, in a 40-man national sales force. When we were ready to introduce Columbia Crest, we had established relationships with 250 distributors throughout the U.S. We put a lot of attention into the wines themselves, the grape varieties, packaging, price points, promotion, and advertising.

"We released the five white varieties in 1987. We hired a cosmetic design firm to do the labels and won awards on the packaging. We put all wines in punt bottles and did everything we could to communicate to the consumer and retailer that this is truly a premium product. We waited one year after introducing the five whites, and then released the Cabernet Sauvignon and Merlot.

"We then went into our advertising campaign. We went through several successful campaigns before our present campaign, which we started about 1½ years ago.

"We struck up a relationship with Jeff Smith, the `Frugal Gourmet,' because he was well-known among fine wine appreciators. He is a credible person who has a Northwest heritage.

"The Frugal Gourmet believes very strongly that wine should be served to the masses, that it should be priced for the masses. We feel he's exactly the kind of person to help us bring wine to the larger population.

"In 1990, we used both radio and print with the Frugal Gourmet. In 1991 we're using print only, partly because we want to save money, but also because, fortunately, many of our wines are on allocation.

"We try to integrate everything we do so that it works synergistically in terms of developing point-of-sale materials, trade materials, and displays.

"This year a display program uses four different themes, and a 6-ft. Jeff Smith header card. We can't seem to produce enough; every chain that we've presented these to has wanted them.

"We are trying to keep the brand fresh and interesting, so we are introducing a Semillon/Chardonnay. This is a product the Australians brought here and we found that using the Semillon grapes of Washington in the Chardonnay has been very successful. One of the by-products of that, interestingly enough, is that many people believe the brand is still Chardonnay and that Semillon is maybe the winemaker or something. The Semillon grape is not as expensive as Chardonnay so it helps us contain the price of the product.

"Hopefully in a few years I will be talking to you about Dry Riesling, because we think this could be one of the most exciting things happening in our industry." ■

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Each has other advantages and disadvantages and there are producers who promise major upcoming breakthroughs. A couple of points might be considered: First, the wine industry, in general, and the California wine industry, in particular, will not lead in the ultimate resolution of the environmental issues surrounding packaging materials. Second, as is usually the case, in the long-term, economics will prevail. That says to us that when lead is discontinued (producers to shut down by the end of 1993), all of the above materials will find application, with perhaps the exception of polystyrene. It is APM's estimate that less than 50% of current tin/lead users will switch to tin and that the remainder will go to PVC and polyethylene.

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Aluminum pleated	metallic look	appearance	60% of T/L cost
Polylam pleated	durable metallic	appearance	75% of T/L cost
Polylam preform	durable metallic spins like T/L	two-piece	same as T/L
Non-metallic:			
Polyethylene	simple, recyclable	plastic appearance	50% of T/L cost
PVC	widely used	agitates environmentalists	50% of T/L cost
Polystyrene	agitates environmentalists	structural problems	60% of T/L cost
PET	recyclable	cost	80% of T/L cost

APM METALLIKA® capsules

California Glass Co.

The inevitable demise of a capsule containing lead is no surprise in this world so aware of environmental and health concerns. Capsule manufacturers are now searching for an alternative material which will look similar to the traditional tin/lead, not cost more and can be applied to the bottle using existing winery equipment. The 'right' alternative must also be easy to open.

California Glass Co. and its manufacturer of high-quality capsules, Eduard Watzke of Austria, offer the wine industry the latest innovations:

Pure tin is now being supplied to several wineries. They look and apply the same as tin/lead, but the disadvantage is high cost; approximately twice that for tin/lead.

Aluminum samples of spinner-applicable capsules are now available. Large scale production could be available before the end of 1991 at a price expected to be 10% more than tin/lead. Problems of 'hardness' of the metal are currently being overcome with tear strips making the opening easier and less likely to provide a cut finger from a sharp edge. However, there is additional research and development in an endeavor to make the metal more pliable so as not to require the tear tab.

Polylux is an aluminum and plastic laminate. This can be applied with existing spinning equipment. It looks very similar to tin/lead and will cost about 15% less than tin/lead. Samples are available and volume production will be available towards the end of 1991.

Heat-shrink was previously manufactured in PVC, but now can be produced in polystyrene and PET. The change from PVC is due to environmental concerns. Prices are about $30 per 1,000 capsules.

Inquiries to: **California Glass Co.,** 155-98th Ave., Oakland, CA 94603, tel: 415/635-7700 OR Oregon City, OR, tel: 1-800/326-8971.

Please see our ad page 34.

Suppliers in this round-up provided the product descriptions.
PWV assumes no responsibility for content or accuracy.

Cork & Seal Company

The newly formed Cork & Seal (CSC) Company, a product of the recent merger between Cork & Seal of California, Inc., and Cebal, Inc., supplys still and sparkling wine capsules. All capsules are products of France except the polylaminated sparkling wine capsules which are manufactured locally at CSC.

For still wine capsules, CSC offers traditional tin/lead and several non-lead alternatives to replace tin/lead which are 100% tin, aluminum composite, and PVC.

The application process for pure tin and aluminum composite capsules will not differ from that for tin/lead; therefore, no capital investment is necessary. In addition, the cosmetic appearance of these capsules will be identical to the tin/lead.

Wineries can continue to use the same colors, finishes, and decorations. Opening the pure tin and the aluminum composite capsules with a knife blade, the traditional way, will pose no difficulty. The edge left after removal of the capsule top will be quite safe to handle.

PVC heat/shrink is the third alternative to tin/lead. Wineries can customize PVC capsules by opting to have a custom-decorated aluminum top disc and/or custom printing on the capsule's skirt either by the rotogravure or hot stamping process.

For sparkling wine capsules, CSC offers polylam, tin/lead, or pure tin to match any color and fit any bottle shape. Both the skirt and top disc of polylam capsules can be printed in one, two, or three colors by the rotogravure and/or hot stamping process. Wineries have a choice between four finishes: smooth, pebbled, or embossed with a large or small diamond pattern.

The tin/lead and pure tin capsules are decorated by the process of hot stamping, embossing, and/or silk screening.

Inquiries to: **Cork & Seal Company,** 5425 Napa-Vallejo Hwy, Vallejo, CA 94589, tel: 707/257-6481, fax: 707/257-8028.

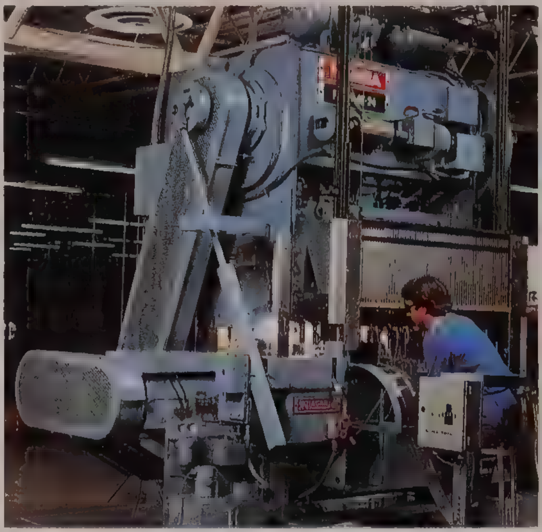
Please see our ad, page 24

Cru Industries

Cru Industries is the first and only American producer of tin/lead and tin capsules for the U.S. wine industry. To better serve the industry's needs, Cru's manufacturing and sales operations are located in Napa, CA. Production began in its 25,000-sq.ft. facility in January, 1990.

Both tin and tin/lead capsules are formed and decorated on Cru's state-of-the-art high-speed line where caps are punched from foil raw material at 120 caps/minute. The capsules are then side-decorated and top embossed at these high speeds with custom-designed German silk screening equipment. In addition, to enable the production of a diversity of sizes, Cru purchased the equipment of the former Betts Company in England.

Capsules are custom manufactured to customer's needs in sizes ranging from 28.5mm to 32.5mm in diameter and from 43mm to 60mm in length. Decoration includes up to three colors on the side and embossing at two levels with highlighting on the top. Any of the colors can be matched from a sample capsule or from submitted color chips.



Capsule manufacturing at Cru Industries.

Cru, because of its location, offers the opportunity for customers to work face-to-face with factory sales, production, design, coating, and engineering personnel to achieve each winery's design, bottling, and delivery needs.

Inquiries to: **Cru Industries,** 100 Coombs St., Napa, CA 94559-3941, tel: 707/255-5994, fax: 707/255-0972.

Please see our ad, page 32.

Enotech Corporation

Enotech offers two lines of wine capsules: lead-free metal capsules and heat-shrinkable plastic capsules.

Metal capsules are of pure tin or wound-style polylaminated aluminum. Soon to be introduced will be a deep-drawn aluminum alloy capsule. These capsules are suitable for spinning on conventional capsule spinning machines, with optional pre-pleating devices (or separate pre-pleating machines) for polylaminated aluminum capsules.

Heat-shrinkable plastic capsules are of PVC or Polystyrene, with optional tear perforation or tear strip. These capsules are for use with conventional heat tunnels or the new rotary style heat-shrinking machines with air-cooling of capsule tops to prevent lifting and curling of capsule top discs. Rotary heat-shrinking machines also feature automatic retraction of thermal heads from bottles in case of line stoppage.

Delivery time for custom imprinted/embossed and color-matched capsules is approximately 12 weeks, and the minimum order quantity is 100,000. Colors can be specified from the Pantone and Toyo color catalogs, and custom samples with imprinting and/or embossing based upon customer's artwork are available.

Enotech also supplies all types of capsuling machinery, including capsule applicators, spinners, and rotary heat-shrinking machines, from semi-automatic to fully automatic machines in ratings up to 300+ BPM.

Inquiries to: **Enotech Corporation,** PO Box 576, Palo Alto, CA 94302, tel: 415/851-2040, fax: 415/851-2034.

Please see our ad, page 15.

fp Packaging, Inc.

Sofacap seamless extruded PVC capsules are being supplied to the wine industry by fp Packaging. These custom design capsules can be manufactured in a variety of thicknesses from 75 to 120-micron. This range allows the supplier to achieve the specific results desired by each winery.

Unlike traditional PVC capsules with a metal top disk, Sofacaps are composed of an extruded PVC top disk heat-sealed to a seamless body, thus assuring the integrity of the finished capsule.

A customer's design can utilize three matte or gloss colors; an extruded base color plus two additional printed colors. Both side and top printing are available.

PVC capsules dispense easily either with automatic equipment, which fp Packaging can supply, or by hand. Nesting is not a problem as it can be with tin/lead capsules.

Because of continuing environmental concerns, fp Packaging is working with Sofacap on the next generation of shrinkable wine capsules — seamless P.E.T.

Inquiries to: **fp Packaging,** PO Box 881, S.San Francisco, CA 94083, tel: 415/472-5400, fax: 415/871-5950.

KLR Machines, Inc.

PVC (Poly Vinyl Chloride) and OPS (Oriented Poly Sytrene) heat shrink capsules manufactured by SANOPLAST are available in a wide range of colors, finishes, and sizes from KLR Machines.

SANOPLAST capsules readily accept custom printing, embossing, and color schemes. Capsules can be provided with plain or colored tear tabs, perforations, and plain or embossed top disks. The capsules can be given a gloss, satin, flat, or metallic finish.

SANOPLAST also provides heat shrink tunnels to ensure correct shrinkage of SANOPLAST capsules. Designed for a wide throughput range, the proper tunnel is available for all applications.

Inquiries to: **KLR Machines, Inc.,** 350 Morris St.#E, Sebastopol, CA 95472, 707/823-2883 OR 47 W.Steuben St., Bath, NY 14810 607/776-4193.

Please see our ad, page 12.

Lafitte Cork & Capsule, Inc.

As the uncertainty in timing for future use of tin/lead capsules continues, Lafitte can supply the following options today:

100% tin capsules produced by Lafitte's sister company, Bouchage Metallique are ideal for premium wines. No modification of spinner or spinner rollers is required for conversion from tin/lead to 100% tin.

Capsules by Lafitte.

PVC heat-shrinkable capsules are produced in Lafitte's Napa, CA facility in many stock colors for 750mL or 1.5L bottles. Custom colors with printing are available. A heat tunnel is required on the bottling line conveyor to 'shrink' capsules to fit bottle necks.

Polystyrene heat-shrinkable capsules are also produced at Lafitte, in Napa. Lafitte suggests that the Polystyrene alternative is the least desirable due to a high heat sensitivity.

PET heat-shrinkable capsules are the most environmentally sensitive option. Final testing for compatibility of inks and glues is underway. Production in Napa will begin soon and 'stock' colors will be available.

Polylaminate seamed capsules are a 'sandwich' of a thin sheet of polyethylene between two aluminum layers which have been used many years for sparkling wine. To achieve an acceptable appearance, this capsule must be made from either sufficient material thickness or the winery must pre-pleat the capsule before entry into the spinner.

All capsules are produced by Lafitte in France or Napa, depending upon capsule size and volume requirements.

In the fourth quarter of 1991, Lafitte will offer a 100% seamless aluminum capsule produced by the 'drawn' or 'punched' method of manufacture similar to tin/lead. Aluminum capsules will be 'environmentally friendly' and no modification to existing foil spinner or dispenser mechanics will be required. Decoration plates/dies for tin/lead capsules may be used on this new aluminum capsule. Deliveries will begin in the second quarter of 1992.

Inquiries to: **Lafitte Cork & Capsule, Inc.,** 908 Enterprise Way, Napa, CA 94558, tel: 707/258-CORK, 1-800/339-CORK (in Calif.), fax: 707/258-0558.

Please see our ad, page 8.

Latchford Package Co.

Latchford Package Company has served the wine industry for more than 60 years. The company offers a complete line of glass bottles in all sizes and colors as well as corks, capsules, plastic top stoppers, aluminum closures, and champagne supplies.

The company's recent marriage with Anchor Glass allows Latchford Package Co. to serve wineries locally from one of their 21 sales offices located throughout the U.S. In the eastern U.S., Saxco International currently serves as the agent selling glass to the wine industry.

Latchford currently offers tin capsules, PVC capsules, and tin/lead capsules. The company continues to review and study all alternatives as the market begins to swing away from tin/lead. Latchford offers a wide range of stock capsules and can process your order for custom capsules as well.

In addition, Latchford offers straight wine corks. The company's cork processing plant in San Leandro, CA continues to be modernized with new equipment to insure top quality and efficiency.

The full line of wine products allows Latchford Package Co. to offer the Total Packaging Concept.

Inquiries to: **Latchford Package Co.,** 1940 Fairway Dr., San Leandro, CA 94577, tel: 415/357-0182 OR 4343 Anchor Plaza Parkway, Tampa, FL 33634, tel: 813/884-0000.

Please see our ad, page 7.

Pickering Winery Supply

With suppliers both in Asia and Europe, Pickering Winery Supply (PWS) offers heatshrinks, both PVC and Polystyrene, but reminds customers that these are plastics which, while they look great when applied correctly, can be difficult to remove without tear tabs. Disposal is another concern.

The tin/lead alternative recommended by PWS is polylaminates, the same material used in most champagne capsules. More environmentally sound, these are essentially aluminum sandwiches with polyethylene in the middle. Thicker versions are coming onto the market now that will give them more the heft and 'feel' of tin/lead. They perform in most respects just like tin/lead foils but have one downside: they require pleating before going into the spinner. For best performance, a separate station with a pneumatic pleater which can put one or two pleats is required. Another less costly solution is to retrofit the existing spinner head with a physical pleating device with puts on four or five neat pleats before spinning.

Until the market decides which direction it will take, PWS will only accept custom orders of either alternative. For those determined to use pure tin, we do represent a manufacturer which specializes in ultra high-quality small runs at premium prices.

Inquiries to: **Pickering Winery Supply,** 1300-22nd St., San Francisco, CA 94107, tel: 415/821-2400, fax: 415/821-0811.

Please see our ad, page 42.

Ramondin USA, Inc.

Ramondin USA, Inc. is the direct marketing and sales arm of Ramondin, S.A. based in Spain. Ramondin specializes in pure-tin capsules for premium wine bottles and polylaminated capsules for sparkling wine bottles.

Custom capsules can be manufactured in sizes between 28mm to 31mm in top diameter and from 40mm to 65mm in

Capsules by Ramondin.

length. Any color can be matched, whether it be from a sample submitted to the factory or from a specific Pantone color chip.

Decoration can include up to two colors on the top and three colors on the side of the capsules and the top can be embossed or plain. Minimum quantities apply on custom orders and the lead time is approximately three months from the date of order.

Stock tin capsules are available from the Napa, CA warehouse in 28.75 x 50mm size and in eight different colors. For wineries still interested in using tin/lead capsules, they are available on a custom order basis. Certain colors in tin/lead will also be available for immediate delivery from our Napa warehouse.

Inquiries to: **Ramondin USA, Inc.** PO Box 2266, 830E Latour Ct., Napa, CA 94558; tel: 707/944-2277; fax: 707/257-1408.
Please see our ad page 13.

R.L.S. Equipment Co., Inc.

All-tin capsules are available in sizes from 28 to 32mm in various colors. Orders for custom capsules will require approximately four to six weeks for delivery after approval of sample, with minimum orders of 20,000. Custom capsules can be purchased in multiple colors in any length or width with a logo embossed on top.

PVC heat-shrink capsules are available from stock in brilliant or matte finish for the 750mL bottle. Custom orders for PVC capsules will require betwen eight and ten weeks for delivery after approval of sample.
Inquiries to: **RLS Equipment Co., Inc.,** PO Box 282, Egg Harbor City, NJ 08215; tel: 609/965-0074, fax: 609/965-2509 or **RLS West, Inc.,** Napa, CA, tel: 1-800/527-0197.
Please see our ad page 41.

Scott Laboratories, Inc.

Heat-shrink, polylaminate, tin/lead, and all-tin wine capsules are available from Scott Laboratories, Inc. Aluminum and polylaminate capsules for champagne are also available.

Heat-shrink capsules are available in PVC and OPS (oriented polystyrene). Scott currently stocks capsules to fit standard 750mL bottles in colors of gold, red, and green. For custom orders, Scott can provide heat-shrink capsules in up to eight colors.

Tin/lead capsules are stocked in the colors: black, blue, creme, dark green, light matte green, yellow, white, maroon, metallic flor red, transparent gold, opaque gold, and silver.

All-tin capsules are stocked in the colors: black, maroon, creme, and transparent gold. In the near future, these inventories will be supplemented by opaque gold, yellow, metallic flor red, and silver.

Both all-tin and tin/lead capsules generally require 12 weeks to process and ship (depending upon the season). Delivery will be confirmed at the time of order.

Custom embossing and printing (including indexed printing) are available for all-tin and tin/lead. Capsules may be ring or 'pip' separated.

Champagne capsules are available in aluminum and polylaminate. Capsule bodies may be printed in up to six colors and raised embossed lettering is available. Scoop necks may be provided at nominal upcharge. All champagne capsule orders are custom.
Inquiries to: **Scott Laboratories, Inc.,** PO Box 750249, Petaluma, CA 94975, tel: 707/765-6666, fax: 707/765-6674, OR in Canada, tel: 416/839-9463, fax: 416/839-0738.
Please see our ad, pages 19,21.

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Buck, Angelo and Bob Sangiacomo

Sangiacomo Vineyards offers varied grape flavors

By Julie Morrison

Sangiacomo Vineyards, one of the largest vineyard operations in northern California, offers winemakers a diversity of grape flavors due to the varying microclimates, soil types, varietals, and clonal selections of their 1,045 acres of vineyards.

A family business based in the Carneros region just south of the town of Sonoma, Sangiacomo Vineyards is managed by brothers Angelo, Bob, Buck, and sister Lorraine Sangiacomo. All three brothers completed degrees in pomology and viticulture at the University of California, Davis.

Agricultural roots

The Sangiacomo family began farming fruit trees in Carneros in 1927, and eventually became the largest pear growers in Sonoma County. In 1969 they planted 130 acres to grapes, and in the late 1970s began converting all orchards to vineyards. Today the family cultivates 900 acres of Carneros vineyards planted to Chardonnay, Pinot noir, and Merlot.

In 1988, the family expanded their operations outside the Carneros region, purchasing a 45-acre vineyard in the Rutherford district of Napa Valley. Due to phylloxera, ⅔ of the vineyard has been replanted to 20 acres of Cabernet Sauvignon and 10 acres of Merlot on S04 rootstock. The remaining 15 acres was planted to Chardonnay on 5BB rootstock in 1988.

Also in 1988, Sangiacomo Vineyards and Domaine Chandon jointly purchased 300 acres in the Lakeville region of Sonoma County. In 1989, 200 acres was planted to Chardonnay and Pinot noir. Two-thirds of the grapes are slated for sparkling wine production and ⅓ for still wine.

Cultural practices

Approximately 85% of the family's vineyards are pruned to a bilateral cordon that they feel provides for "an even and consistent production." The remaining 15%, the early Carneros plantings of Chardonnay in the Green Acres and Southern Sonoma vineyard blocks, are cane-pruned.

Drip irrigation is installed on 80% of the vineyards. Portions of the Green Acres and Home vineyards are not irrigated due to deep soils.

Each irrigated vineyard block is divided into numerous subsets that allow for flexibility of application according to need. Sections in the Carneros vineyards with shallow soils such as the Haire, Wright, and Huichica series, as well as the Cole series present in the Napa vineyard, require up to 120 gallons/vine per season. Deeper soils such as Zamora require 80 gallons/vine/season.

A combination of Haire and Clear Lake soil series is present in the Lakeville vineyard. The Clear Lake soil is covered by two to three feet of alluvial top soil. The vines, currently in their second leaf, are planted on SO4 and 5BB rootstock spaced 8 x 6 and receive 40 gallons/vine in the growing season. Irrigation for all vineyards ceases three weeks before harvest on shallow soils and six weeks for deeper soils.

Philosophically, the Sangiacomos aim to apply just enough water to avoid premature loss of leaves before full grape maturity. "We try to keep the leaves functioning right until the grapes reach maturity," explained Angelo. "Before we put in drip in 1985 on our new Carneros vineyards (Home and Catarina), we noticed that some of the vines would drop leaves at 21° sugar. We also noticed that at the same sugar levels, grapes from the vines that had held onto their leaves had much better flavors."

A 2-wire trellis system was installed on 75% of the vineyards planted before 1987. New plantings have a 4-wire vertical trellising system to allow shoot-positioning.

"We like the 4-wire trellis because we get good sunlight and better air movement and we also have to do less leaf-thinning," said Angelo.

Roughly ½ of the vineyards are basal leaf-thinned. The vines are leaf-pulled on both sides beginning in mid-June. Approximately 10% of the vines receive basal leaf pulling a second time to remove regrowth.

Contrary to the UC Davis recommendation of trimming back canes to the twelfth node, the Sangiacomos prefer not to trim at all. "We don't hedge our vines," noted Angelo, "because we feel that the few extra leaves at the ends of the canes serve to enhance the flavors.

"It would be safer for us to trim the canes and avoid the risk of botrytis, but in the end we would lose flavors, so we don't trim them. We remove all non-functioning leaves in the interior of the canopy and let the canes trail in the center of each row."

The Sangiacomos apply sulfur to control mildew until June 15, after which they use Bayleton or Rally in 4-ounce applications. They clean berms with Roundup, disc aisles, and choose not to use bunch rot sprays.

Harvest

The Sangiacomos pride themselves on always being able to deliver what they promise when promised, particularly during harvest. Built into their operation is a sizable cushion of extra grapes, machinery, and manpower that offer protection from the inevitable pitfalls that wreak havoc in a grapegrower's life.

"We always try to have a margin of grapes that aren't committed to the wineries," stated Angelo. "This puts us in a position where, if the crop falls short, we can still fulfill winery requirements. The disadvantage is the danger of having unsold grapes, but there has never been a problem selling extra grapes.

"During harvest, all of our crews are out in the field ready to start picking at sunrise. In 1991 we will try picking 20% of the grapes at night.

"We always have a couple of trucks on standby in case one doesn't get back on time. That way we can always deliver our grapes on time. Sometimes the standby driver will not haul once the whole day.

"If we have a rush period, we bring in extra crews. Most of our regular pickers come back every year. We have a seniority list and always hire first the people who've worked for us before. We've got some pickers who've come back for 15 years.

"We make sure that the pickers understand what our standards are: no leaves or sunburned grapes, and gentle handling. Each picker fills a picking box ¼ full, then stops to remove all leaves or damaged fruit, then continues until the box is ½ full, then stops again."

For every crew of eight pickers there is a supervisor and for every four crews, a field boss.

Long-term relationships

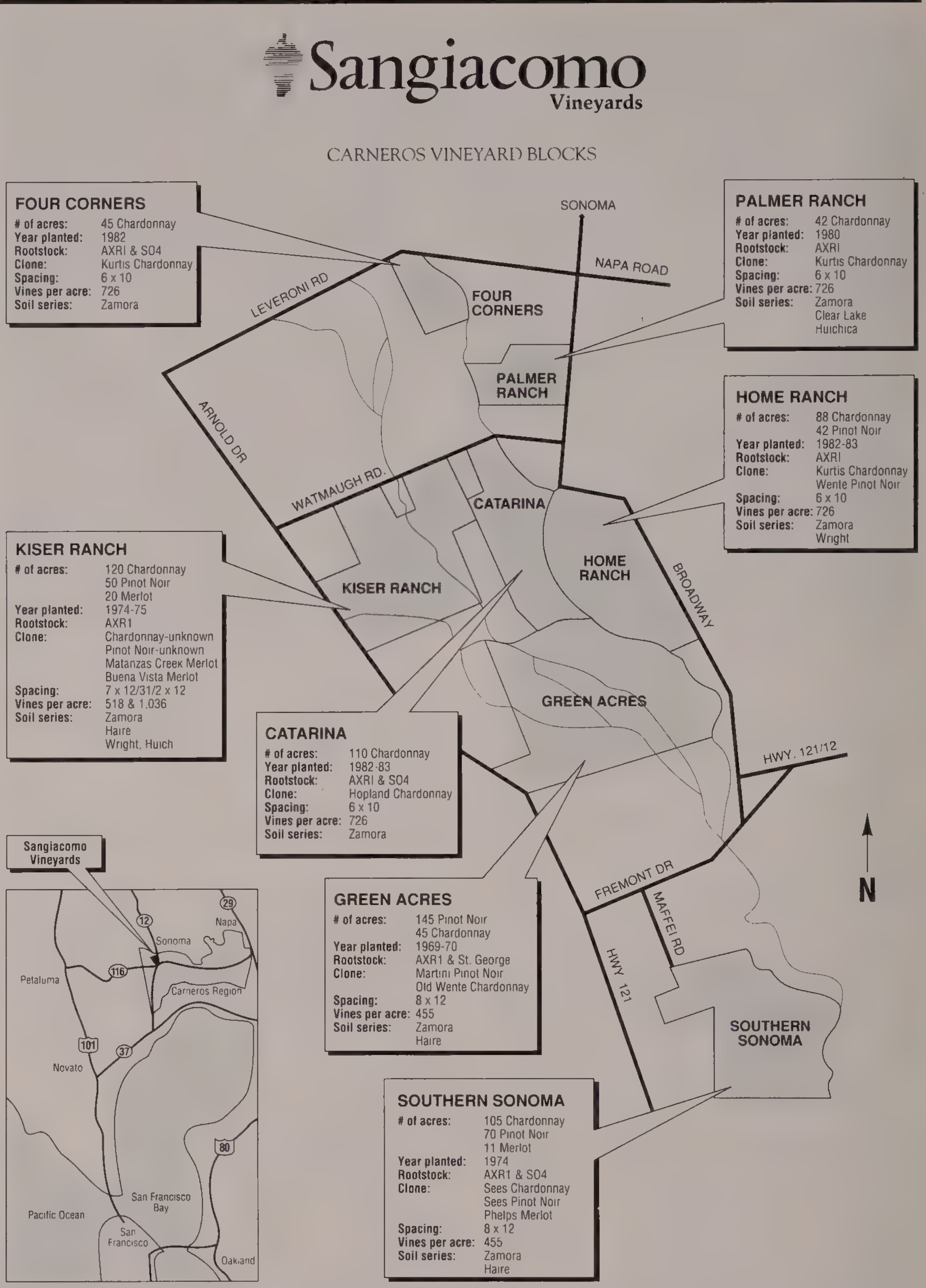
Relationships between growers and vintners can be challenging even in the best of years, but the Sangiacomo family has succeeded in maintaining open communication with all winery clients.

"We always look to the future. We do everything we can to maintain our long-term relationships and keep our winery clients happy," remarked Angelo.

"Long-term contracts work well for both parties because they even out the good and the lesser vintages. We always try to price our grapes so that, not only do we get our fair share, but the winery makes a profit as well. If they do well, we do too."

Such 'long-term' relationships can assume different forms. For the Sangiacomos, this means three-, five-, and occasionally 10-year contracts. The contracts allow for annual price fluctuations as determined by the cost of living, bottle price, and county averages.

About 50% of the Sangiacomo clients have a written contract, while others formalize the agreement in a letter or even a handshake. Certain wineries even settle on the price of grapes **after** delivery.



FOUR CORNERS
# of acres: 45 Chardonnay
Year planted: 1982
Rootstock: AXRI & S04
Clone: Kurtis Chardonnay
Spacing: 6 x 10
Vines per acre: 726
Soil series: Zamora

PALMER RANCH
# of acres: 42 Chardonnay
Year planted: 1980
Rootstock: AXRI
Clone: Kurtis Chardonnay
Spacing: 6 x 10
Vines per acre: 726
Soil series: Zamora
Clear Lake
Huichica

HOME RANCH
# of acres: 88 Chardonnay
42 Pinot Noir
Year planted: 1982-83
Rootstock: AXRI
Clone: Kurtis Chardonnay
Wente Pinot Noir
Spacing: 6 x 10
Vines per acre: 726
Soil series: Zamora
Wright

KISER RANCH
# of acres: 120 Chardonnay
50 Pinot Noir
20 Merlot
Year planted: 1974-75
Rootstock: AXR1
Clone: Chardonnay-unknown
Pinot Noir-unknown
Matanzas Creek Merlot
Buena Vista Merlot
Spacing: 7 x 12/31/2 x 12
Vines per acre: 518 & 1.036
Soil series: Zamora
Haire
Wright, Huich

CATARINA
# of acres: 110 Chardonnay
Year planted: 1982-83
Rootstock: AXRI & S04
Clone: Hopland Chardonnay
Spacing: 6 x 10
Vines per acre: 726
Soil series: Zamora

GREEN ACRES
# of acres: 145 Pinot Noir
45 Chardonnay
Year planted: 1969-70
Rootstock: AXR1 & St. George
Clone: Martini Pinot Noir
Old Wente Chardonnay
Spacing: 8 x 12
Vines per acre: 455
Soil series: Zamora
Haire

SOUTHERN SONOMA
# of acres: 105 Chardonnay
70 Pinot Noir
11 Merlot
Year planted: 1974
Rootstock: AXR1 & S04
Clone: Sees Chardonnay
Sees Pinot Noir
Phelps Merlot
Spacing: 8 x 12
Vines per acre: 455
Soil series: Zamora
Haire

Carneros connection

While Sangiacomo Vineyards cultivates four varietals (Chardonnay, Pinot noir, Cabernet Sauvignon, and Merlot) in three distinct locations (Carneros, Napa, and Lakeville), the Sangiacomo name is most closely aligned with the Carneros viticultural region and primarily with Carneros Chardonnay.

Roughly ⅔ of the Carneros vineyards are planted to Chardonnay. Almost ⅓ is planted to Pinot noir, much of which is used for sparkling wine production, and 31 acres are planted to Merlot.

While the Carneros fruit may vary slightly from block to block, all the grapes exhibit, to some degree, the trademark imposed by the regional microclimate.

Tom Petersen, Winemaker at Chateau Souverain, uses Sangiacomo Chardonnay from the Four Corners Vineyard to round out a Sonoma County Chardonnay. "We use Alexander Valley fruit for structure and the framework and we use Carneros fruit as ornamentation."

Dawnine Dyer, Winemaker at Domaine Chandon, buys both Chardonnay and Pinot noir for sparkling wine because she feels that the Carneros fruit has a very distinctive character. The Pinot noir is "full-bodied, with strawberry and cherry notes and is more bluish in color," she says, "while the Chardonnay, which she uses for highlights, has fruity, pineapple flavors.

The Merlot, highly regarded and available in nominal quantities, is described by Winemaker Joel Petersen of Ravenswood as "big, rich, round, and very intense. It's some of the best Merlot I purchase." Audubon, Gundlach-Bundschu, Joseph Phelps, and Solitude wineries choose to vineyard-designate a Sangiacomo Chardonnay. Ravenswood produces both a Sangiacomo Chardonnay and Merlot, while Richardson bottles a Pinot Noir.

There are seven different Carneros vineyard blocks, each with its own distinct flavor nuances. Winemakers choose fruit to match their taste preferences. Some wineries purchase just one varietal or from only one block, while others purchase more than one varietal or from a variety of blocks.

There are certain years, for example, when Saintsbury buys grapes (Chardonnay and/or Pinot noir) from as many as five of the seven blocks. A few wineries obtain fruit from certain vineyard blocks or rows, depending on when the winery first purchased grapes.

Green Acres Vineyard

Green Acres was the first vineyard planted (1969), and it has played a pivotal role in establishing the Sangiacomo reputation for quality. Green Acres Chardonnay was sold to Domaine Chandon throughout the 1970s for sparkling wine production. Carneros was still considered a newcomer on the wine scene and the character of Carneros grapes had yet to be defined.

After working with the grapes for a few vintages, Dawnine Dyer came to the conclusion that Green Acres Chardonnay was too intense in flavor for sparkling wine and perhaps was better suited for the production of still wine. In 1981 Domaine Chandon's sister company, Simi Winery, was prospecting for Chardonnay and purchased Green Acres grapes.

David Graves and Dick Ward of Saintsbury purchased grapes from Green Acres to make their first Chardonnay in 1981. Today, Simi and Saintsbury share the Chardonnay tonnage from Green Acres. Chardonnay grapes from Green Acres and other blocks make up about 25% of Simi's annual 75,000 cases of Chardonnay and more than half of the Saintsbury Carneros Chardonnay and Saintsbury Reserve Chardonnay.

"Green Acres has the highest acidity," says Dick Ward of Saintsbury. "In cooler years the acid is generally 13 grams/liter and in warmer years 10 grams/liter. The grapes are rich in extract and have a strong lemony character. In cooler years they border on grassiness."

"It's a dense, intense, rich wine, sometimes veering towards being heavy, with great mouthfeel," says Diane Kenworthy, Viticulturist at Simi.

Planted on AXR-1 and St. George rootstocks to the Wente Chardonnay clone, Green Acres has the lowest yield (2½ tons/acre) of all the Carneros blocks and is usually picked last, averaging 120 days from set to harvest.

"The pH tends to be high, around 3.4, because of high malic acid (7.5) and the fact that the grapes are the last to be harvested," reports Ward.

Catarina Vineyard

Many winemakers consider Chardonnay from the Catarina Vineyard to most closely approximate that of Green Acres. The two vineyards are planted side-by-side and share similar soil types.

The Zamora soil series, a well-drained clay loam approximately four feet deep, runs through both blocks. The Haire series, a moderately well-drained clay loam up to three feet in depth, is present in Green Acres.

Catarina Vineyard is 13 years younger than Green Acres and is planted to the Hopland clone. Catarina has tighter spacing — 6 x 10 as compared to 8 x 12 in Green Acres.

Catarina produces a greater cluster weight — ⅓ to ½-lb. as compared to ⅛ to ¼-lb. for Green Acres — and roughly twice the yield — 5 tons/acre as compared to 2½. This is due to the fact that the Hopland clone is heat-treated and the vine is more vigorous.

Southern Sonoma Vineyard

Southern Sonoma is one of the larger blocks, comprising 186 acres planted in 1974 to Chardonnay, Pinot noir, and Johannisberg Riesling. In 1988/89 the Riesling was 'T'-budded to Merlot.

The vineyard is the southernmost of all the blocks and generally ripens first. Planted on AXR-1 and SO4 to the Sees Chardonnay and Phelps Merlot clonal selections, the vines are spaced 8x 12 and tend to be small.

Southern Sonoma, like the Four Corners, Palmer, Catarina, and Home vineyards, receives extensive basal leaf pulling to increase sunlight penetration and reduce the threat of mold and mildew.

Southern Sonoma Chardonnay, with its intensely citric and sometime herbal character, is perhaps the most controversial of all the blocks, eliciting either strong like or dislike from the vintners.

"Southern Sonoma gives fairly rich wines," says Dick Ward who has purchased Southern Sonoma Chardonnay for seven years. "There is sometimes a grassiness, but in most years there's a spicy character, almost appley."

Working with Southern Sonoma Chardonnay has proven to be an important learning experience for Joseph Phelps Winemaker Craig Williams. The Sangiacomo grapes started out as an experimental lot that allowed Williams to try different winemaking techniques.

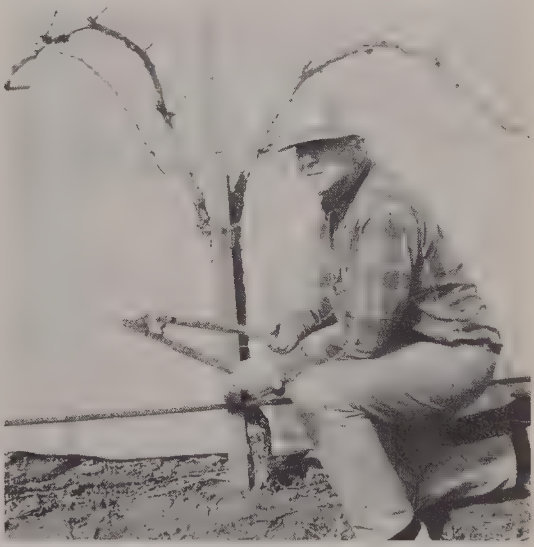
"We started working with Sangiacomo fruit in 1981 and it was our first effort with 100% barrel fermentation," he says. "It was a little bit of an experiment. I was interested in crafting the Chardonnay grape into a wine with oaky, rich flavors without the bitter tannins. In 1984 we added malolactic to increase flavors."

Williams has applied this knowledge to his slightly more-mainstream Napa Valley Chardonnay. "Sangiacomo Vineyard Chardonnay has influenced how we approach our Napa Valley Chardonnay. It has helped us understand barrel fermentation. Each year we increase the amount of barrel fermentation in our Napa Valley wine." Phelps currently produces 4,000 cases of Sangiacomo Chardonnay and 15,000 cases of Napa Valley Chardonnay.

Kiser Ranch

The Kiser Ranch, the newest Carneros block, was purchased from Geyser Peak in 1986. Planted in 1974 and spaced 7 x12, the vines are interplanted on 67 acres in order to increase productivity without compromising quality.

With the resulting 3.5 x 12 spacing, a system of 'arched canes'(see photo) was instituted to open up the fruiting area.



Each cane is arched to a height of 12 to 14 inches and kept in place by a 4-wire trellising system.

The Kiser Ranch is unique among all the blocks in that it has a wide variation in soil types, including the Zamora, Haire, Wright, and Huichica series. Interplanting was completed on all of the soil types with the exception of Zamora, which is deeper and able to ripen a full crop load on the original 7 x 12 spacing.

Kiser Chardonnay includes the old and the new blocks, the latter having been 'T'-budded in 1987 using budwood from the Catarina Vineyard. Kiser fruit is typically described as being delicately perfumed with apple and spice flavors.

Grape maturity

The different Sangiacomo blocks also show varying levels of ripeness. "Although sugar is important," says Diane Kenworthy of Simi, "maturity in each block happens in different places. Catarina has a tendency to mature at higher sugars than Southern Sonoma. We generally pick Southern Sonoma at 21.5°-22.5° Brix and Catarina at 22.5°-23.5°.

"At Green Acres we tend to look more towards flavor as an indication of maturity, as the vineyard is very difficult to sample. We have noticed though, in years when the sugar has reached 23°, that the wine has a tendency towards heaviness, which we try to avoid."

Malolactic and barrel fermentation

Sangiacomo Carneros Chardonnay works well with both barrel and malolactic fermentation, although there is a wide variation of implementation among winemakers.

Joseph Phelps, Saintsbury, and Ravenswood wineries barrel-ferment and encourage malolactic on all of the Sangiacomo fruit, some in new French oak and some in older oak.

Looking to the future

With years of viticultural experience, a solid reputation, and a stable of steady clients, the Sangiacomo family stands well-poised to meet the demands of the future.

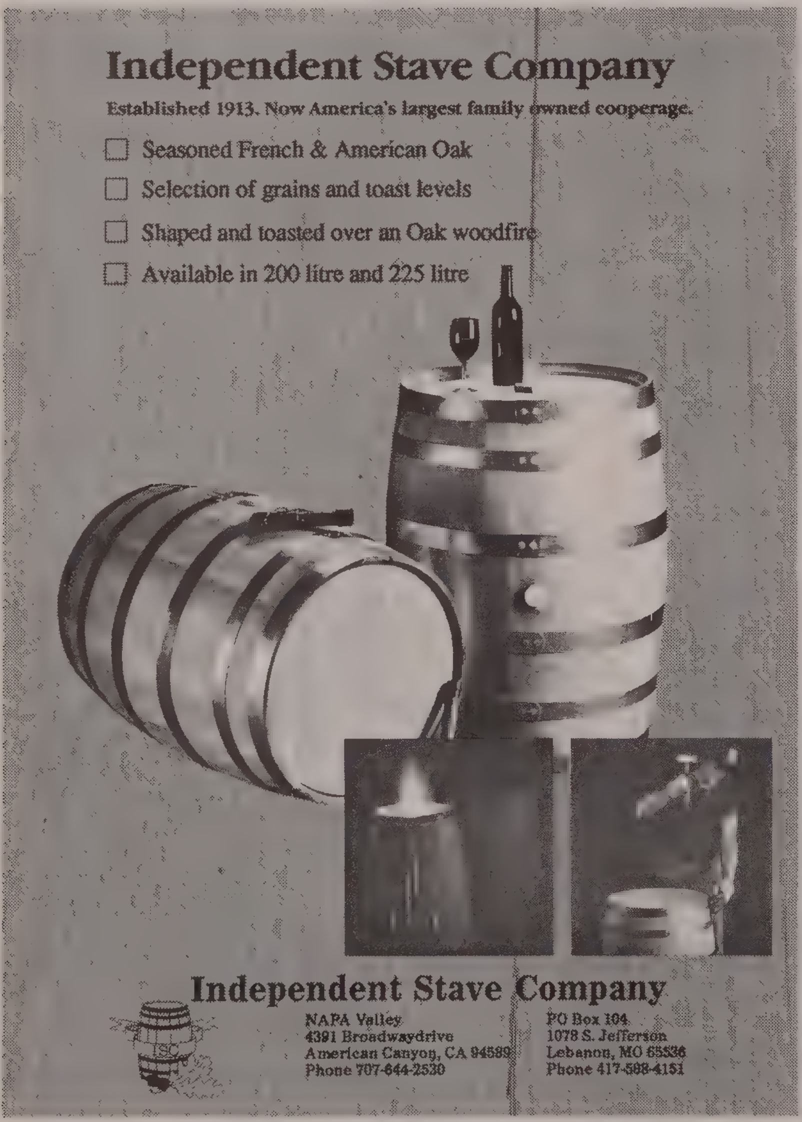
The new Lakeville plantings due to yield the first crop in 1992, will add a new dimension of grape flavors. As the older vineyards reach the 20-year milestone, the Sangiacomos look to replant in the next decade. "We won't start replanting for a few years yet, but when we do, we plan to use the same clones so that winemakers will be assured a maximum of continuity," says Angelo.

In addition, with over 65% of their acreage planted on AXR-1, they do not lightly dismiss the threat of phylloxera. To date, there has been no sign of infestation in their vineyards, except the Napa block which has already been replanted.

"We are prepared to take immediate action at the first sign of a phylloxera infestation," says Angelo. "We would interplant any vineyard less than 15 years old (approximately 50% of Sangiacomo acreage), and remove and replant all vines over 15 years old. We are closely monitoring the situation visually and with aerial photos. We are also careful not to move our equipment off our property."

Angelo looks forward to the day when his three children will join the family business. His son Michael and daughter, Mia, currently in college, will begin work within the next five years. Stephen, a high school student, will follow upon completion of college.

"People ask us every week if we intend to build a winery," says Angelo. "The answer is no." Northern California winemakers can rest assured of a continuing supply of Sangiacomo grapes well into the future. ■



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Changing face of Napa Co-op

By Scott Clemens

In Napa Valley, there is a winery within a winery, like a box inside a box. Not only does the Napa Valley Cooperative function and market under its Bergfeld Winery name, but Robert Bergfeld's 100-year-old stone winery is actually contained within the co-op's walls.

Building around the core

Historians believe that Bergfeld Winery originally was the Peterson Winery, built in 1885 by William Peterson. Over the next six years, Peterson's wife and children died, phylloxera overtook his vineyards, and, in 1891, he sold to San Francisco builder, Robert Bergfeld.

Bergfeld's name was carved into the stone over the doorway which is now the entrance to the lab. (The lab is surrounded by adjoining buildings built to accommodate the winery's growth.)

With the winery's surrounding vineyards destroyed by phylloxera, Bergfeld started what remains a co-op tradition of sourcing grapes from growers throughout Napa Valley.

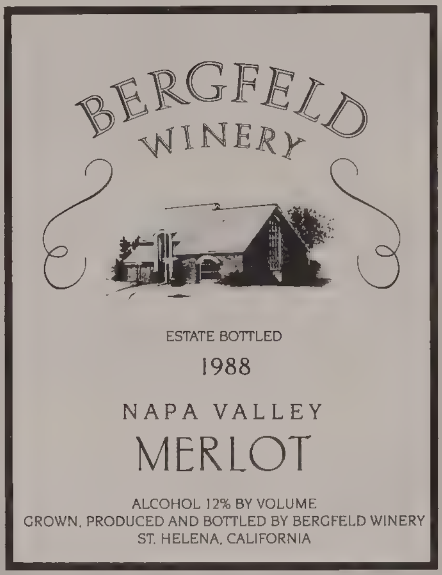
Bergfeld Winery closed after the 1906 earthquake and in 1910 was sold to viticulturist Theodore Gier. Gier expanded the winery to serve as the base of a winemaking operation that stretched as far as the Livermore Valley.

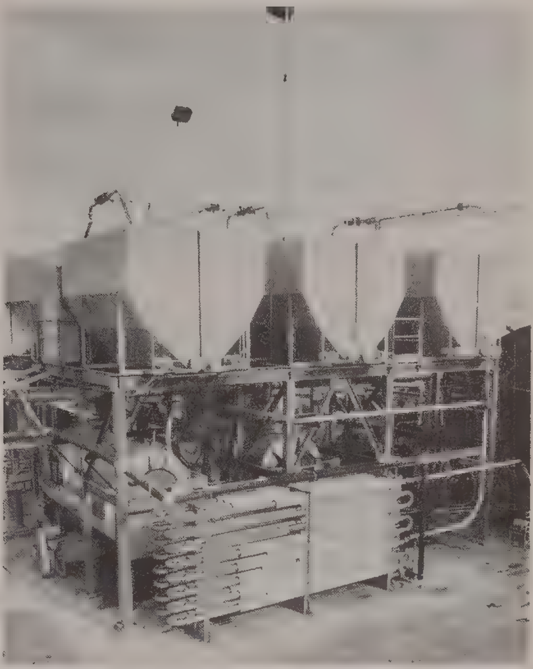
In 1935, a collection of innovative growers formed the Napa Valley Cooperative and purchased Bergfeld Winery. Over the next 50 years, the cooperative rode the ups and downs of the wine industry, receiving member grapes, crushing them, and selling juice and/or bulk wine.

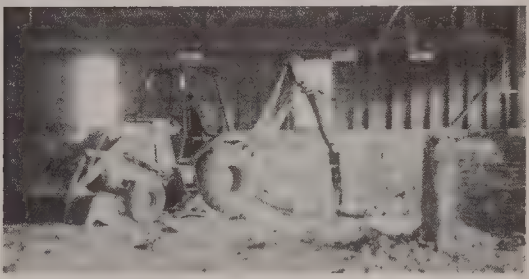
In the early 1950s, E&J Gallo Winery became the largest client, until it took nearly all of the co-op's production. By 1985, co-op management discovered the risk of selling all their grapes to one buyer, when the Gallo contract expired. Fortunately, the co-op negotiated a new contract with Gallo.

Today, Gallo annually buys 500 tons each of Zinfandel, Napa Gamay, and Petite Sirah, which is 25% of the co-op's production. But the amount is shrinking.

"Growers are pulling out Petite Sirah and Napa Gamay because the prices are not very good," explains Zeke Oman, General Manager. "As these varieties are pulled out, the amount of tonnage that goes to Gallo shrinks. What was in the co-op when the contract was signed in 1985 was committed to that program." When those vineyards are lost, either to sale, replanting or grafting, they are lost to the Gallo program.







Above right: new drain tanks, must chiller, and presses. Right: removal of old concrete fermenters.

A new era

The changing relationship with Gallo ushered in a new era for the co-op. In 1985, under the leadership of a progressive board of directors, a $2-million modernization began.

When winemaker Rick Schuetz joined the co-op in 1985, just before the changeover, large screw presses were used and fermentation took place in concrete tanks.

"Before we installed tank presses," recalls Schuetz, "we had to fine a great deal of astringency and bitterness out of the white wines. Having new state-of-the-art equipment made a big difference."

A dozen 10-ton drain tanks were installed to hold grapes before going to press. Also added were: refrigeration; a must chiller; jacketed stainless steel fermentation tanks with a combined capacity of 1,000,000 gallons; French and American oak barrels; new filters; and a bottling line.

"Now it's a winery," says President, Ken Parr. "Before it was a crushing facility."

The new equipment streamlined operations. Turnaround is facilitated by the 12 holding tanks. "We can hold 150 tons of white grapes before starting to press," notes Schuetz. The winery uses two 60-ton/hr Healdsburg destemmers, which Schuetz emphasizes are used only as destemmers, not crushers.

"This is the best place in the county to deliver grapes," says Parr. "There is less waiting time. You don't have trucks tied up for hours. I send trucks to other wineries where I can't count on that truck returning for four or five hours. Whereas a truck is usually in and out of here in 15 or 20 minutes. Turnaround time is important at harvest.

'I'd love to have enough marketplace here to be able to handle all my grapes. Parr sells half of his production to the co-op (640 tons in 1990).

The 1985 modernization also included construction of a visitor tasting room. In 1987, Bergfeld management began laying the groundwork for independence by resurrecting their historical Bergfeld brand. Recognizing the limited consumer appeal of a name like Napa Valley Cooperative, the winery board members elected to name the facility after Robert Bergfeld, and Bergfeld Winery was reborn.

Acquiring a name

The improvements in Bergfeld Winery attracted Whitbread-North America which owned Buckingham Wile Co. Seeking to develop their J.Wile & Sons brand, Whitbread was searching for a Napa Valley facility capable of handling large production. Bergfeld Winery's improvements provided capacity to bottle up to 500,000 cases/year, if the brand could be built to that level. In the first year, 50,000 cases of J.Wile were produced.

The Whitbread agreement allowed Bergfeld Winery to reserve 10% of the best grapes. These would become the source fruit for the new wine which would be made in a reserve style. The end product, Bergfeld Chardonnay, is barrel-fermented in French oak.

At 8,000 cases/year, the Bergfeld brand was first released into national distribution channels in late 1990.

The refurbished winery was producing the J.Wile and Bergfeld brands, when Whitbread unexpectedly sold Buckingham Wile to Hiram Walker/Allied Vinters in February, 1990. This gave Hiram Walker's Wine Alliance, which already owned Atlas Peak and William Hill wineries, ownership of the J.Wile brand, which didn't fit in with their plans.

Bergfeld Winery bought the J.Wile label in October, 1990 by refinancing a loan based on winery collateral. They obtained all marketing, sales, and distribution rights to that brand, and existing inventories. Bergfeld suddenly became a viable winery with two brands and current sales of approximately 70,000 cases/year.

Making a Napa Valley statement

Bergfeld Winery has the unique ability to contract with 110 growers located throughout Napa Valley. "Based on the grapes we receive," says Schuetz, "we could make four very different Napa Valley Merlots or Chardonnays without changing winemaking techniques. Each vineyard is different, even within itself."

Schuetz's familiarity with each of Bergfeld Winery's supplier vineyards allows him to make wines that he believes have a style unique to Napa Valley. "We can blend from many different vineyards in many regions to achieve a particular style we want."

BERGFELD WINERY FAMILY OF WINES

Current releases

BERGFELD WINERY	J. WILE & SONS
1988 Cabernet Sauvignon	1987 Cabernet Sauvignon
1989 Chardonnay	1989 Chardonnay
1988 Merlot	1989 Merlot
1989 Sauvignon Blanc	1990 Sauvignon Blanc
	1990 Chenin Blanc

But Schuetz notes that neither J.Wile & Sons nor Bergfeld wines are merely a casual collection of Napa Valley grapes. "There is a very definite character in our wines that we strive for. We place individual grapes in the most appropriate spot in the wine program. Sometimes it's in the bulk program, or in the J.Wile & Sons program, and in a few instances, in the Bergfeld program."

Guaranteeing quality

The quality of grapes Bergfeld has to work with is much higher than that available to the co-op 20 years ago, when co-op production was sold primarily in bulk, and many saw it as a dumping ground for lower-quality grapes. To compete and effectively meet the needs of the marketplace, the co-op's board members took steps to correct that perception and assure only top-quality deliveries.

They passed new by-laws that gave the co-op the right to refuse grapes, and to terminate membership based on sub-standard quality deliveries. Grower/members now sign three-year contracts, which are renewable as long as management is satisfied with the quality of grapes delivered.

"Many growers bring their best fruit here now," reports Schuetz, "because this is their winery."

There are 110 members and Ken Parr would like to see that number remain stable until the Bergfeld and J.Wile & Sons brands make enough marketplace inroads that more members are needed.

"We're going to be very selective about who we let in," says Parr. "We've had applications in the past two years and have rejected them for poor quality. The seven-member board of directors knows Napa Valley very well, so any grapes that come here now have to meet the quality standards we want. We're not taking anybody in just to get more tonnage; those days are gone."

"We've had a policy since 1984 that the first year a grower comes in, there is a one-year contract at the winery's option," says Oman. "It's a non-member marketing agreement. If we're satisfied with the quality, the grower can become a member."

Growers are paid close to the Napa Valley average price for grapes (5% under is typical). Most growers do not deliver 100% of their grapes to Bergfeld Winery. In 1990, 6,000 tons were crushed. Gallo took about 25%, and 15% was sold on the open market (some of which also may go to Gallo, depending on their needs). The remaining 60% is for Bergfeld, J.Wile & Sons, and custom crushing for wineries such as Glen Ellen Winery. ■

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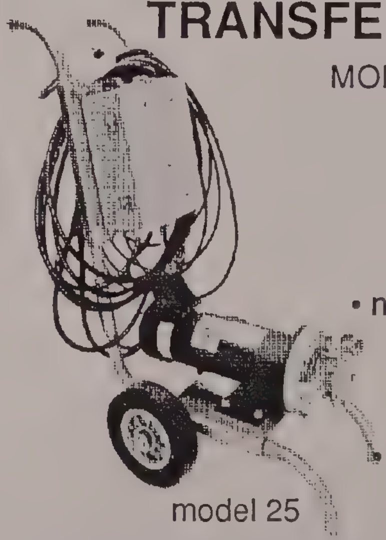

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Michigan wines–striving for regional identity

By Eleanor & Ray Heald

With its beginning in the southwestern corner of the state, Michigan's grape and wine industry has existed for more than a century. Today, 15 wineries and about 2,000 acres of wine grapes are principally located in the western part of the state benefiting from the climatic influences of Lake Michigan.

A secondary and marketing advantage of the location is the tourist attraction of the state's summer and winter resorts along Lake Michigan and the Leelanau and Old Mission peninsulas, north of Traverse City.

Soils of the approved Lake Michigan Shore American Viticultural Area are quite varied, particularly in the glacial uplands. Excessive vigor is a problem and canopy management is practiced. In general, the viable vineyard sites throughout the state are described as loamy sand with veins of clay or sandy loam with some gravel, and are well- to medium-well drained.

Because it is subject to the same rules of all the world's wine producing regions, Michigan's specific site and cultivar factors interact with vitcultural practices to produce quality wine grapes.

Economic factors interact to determine the chances for vineyard success.

Demand for wine grapes is exceeding the supply and several new vineyards have been planted in the last three years.

Climatic viability

Michigan's western shore from the Indiana border to Fennville is climatically influenced by Lake Michigan. In early spring, cool winds from the Lake retard budbreak until the danger of spring frost has passed.

The opposite effect occurs in late fall when the prevailing winds provide warmth for the vineyards and extend hang time. In sub-zero weather, Lake effect snowfall provides natural insulation for vine roots and trunks.

This climate is home for Fenn Valley Vineyards, Lemon Creek Winery, Madron Lake Hills Winery, St. Julian Wine Company, and Tabor Hill Winery.

The wineries on Leelanau and Old Mission peninsulas in the northwest corner of the state (Boskydel Vineyard, Chateau Grand Traverse, Good Harbor Vineyards, Leelanau Limited, and L. Mawby Vineyards) enjoy a number of viticultural advantages along with a 200-inch annual snowfall.

Located on the 45th parallel, these vineyards have longer periods of sunlight than vineyards further south. The peninsulas also experience the moderating effect of Lake Michigan, East and West Grand Traverse Bay, and several other inland lakes.

"Early winter storms don't cause major temperature shifts," claims Bruce Simpson, owner/winemaker of Good Harbor Vineyards.

"Vine damage is not necessarily related to sub-zero winter temperatures," states Doug Welsch, winemaker at his family's Fenn Valley Vineyards in Fennville. "It's more related to big, rapid temperature shifts."

"Hardening off of the previous year's wood is also very important," adds Jim Eschner of Madron Lake Hills Estate in Buchanan.

Compared to the state as a whole, the more northerly section has low relative humidity, a distinct advantage in controlling fungus diseases.

Another pocket of viticultural efforts is in southeast Michigan, close to the Detroit metropolitan area and 60% of the state's population. The Seven Lakes Vineyard is located north of Detroit in Fenton.

Sharon Mills Winery, the only Michigan producer specializing in *méthode champenoise* is located west of the city of Ann Arbor in southeast Michigan. Grapes for their MC Chardonnay and Riesling come from the Old Mission Peninsula. Sharon Mills occupys a historic grist mill with the state's only operating hydroelectric generator built by Henry Ford which draws tourists travelling to and from vacation properties at nearby lakes.

With a 700-case annual production, Sharon Mills sells nearly its entire stock from the tasting room at $15/bottle for the Riesling and $20/bottle for the Chardonnay.

1990 winners of the Michigan State Fair

Leading with hybrids

With all the climatic advantages, Michigan grapevines, with their late budbreak, have the disadvantage of a short growing season. Some winters are harsh with little snowfall, and spring frosts have occurred in mid-May and as late as June 10.

Faced with such adversities, winter-hardy French-American hybrids were deemed the logical choice for grape cultivars in the late 1960s. St. Julian, Michigan's oldest winery, responded to the heightened interest in drier wines by encouraging growers to make extensive plantings of French-American hybrids in the 1970s.

Located in Paw Paw, St. Julian, under the direction of David Braganini, produces 45,000 cases annually. Since 1978, St. Julian has become the state's largest single buyer of the hybrid grape varieties Chambourcin, Chelois, Cayuga White, deChaunac, Marechal Foch, Chancellor Noir, Seyval blanc, Vidal blanc, and Vignoles.

"Vignoles is an interesting wine to sell," Braganini says. "People are unfamiliar with it and are surprised to learn how comparable it is to a straightforward style of Chardonnay.

"Seyval blanc is our most popular wine. We call it Paw Paw Piesporter because we make it off-dry."

At Tabor Hill Winery, 85% to 90% of the production originates from hybrids. However, no wine is labeled as a hybrid varietal. The winery has been successful with proprietary names such as Berrien Ridge White.

Vidal is the principal hybrid. "It is a good neutral base for blended wines," winemaker Richard Moersch reports.

On the less optimistic side, Chris Guest, owner/winemaker at Seven Lakes Vineyard, maintains, "Vidal does not do well in southeast Michigan. At one time, it was thought to be a promising white variety for the entire state. It doesn't ripen until mid-October. By then, we've had one frost. The vine doesn't have time to revitalize, resulting in late set during the next growing season.

"Vignoles is Michigan's utility grape. It offers character that provides interest with a spicy flavor."

Half of the 2,500-case production at L. Mawby Winery in Suttons Bay is Vignoles. "My goal is to make the best barrel-fermented Vignoles possible," states owner/winemaker Larry Mawby.

"We can grow very good Chardonnay and Pinot noir for *méthode champenoise* sparkling wine. Growing Pinot noir for a still table wine is not practical here."

Choosing and growing the correct French-American hybrid has been a major decision for several wineries. "With a five to six ton/acre average yield, Vidal and Seyval have been our staples," reports Bob Lemon, owner of Lemon Creek Vineyards/Winery in Berrien Springs.

Success with red hybrids

While Michigan has experienced success with several white hybrid varietals, many producers have questioned whether dry red wines are viable. Both Fenn Valley Vineyards and St. Julian Wine Company have met with consumer approval of their Chancellor wines.

In the late 1970s, Lawton Ridge Vineyard, a principal southwest Michigan grower, received a shipment of vines from a Maryland supplier. Once it started to grow, the expected white varietal turned out to be Chambourcin.

"In 1982, we began making very limited quantities of Chambourcin from Lawton Ridge Vineyard," states St. Julian's winemaker Chas Catherman. "From our experience, we believe that Chambourcin definitely proves that the southwest portion of Lake Michigan Shore AVA can produce a dry red wine with Burgundian similarities."

Lemon Creek has 11 acres of Chambourcin under cultivation and may plant more. "We've had good luck growing Chambourcin," contends Lemon Creek's Jeff Lemon. "It's moderately vigorous and disease-free. "The bunches are large, loose clusters that make the control of blackrot easier."

"We think Chambourcin has real promise for southwest Michigan growers," reports Dean Bender, a co-owner in the Lawton Ridge venture. "The vines are hardier than Pinot noir and the wine is comparable with its cherry fruit characteristics."

With Lemon Creek's 1989 harvest, St. Julian had sufficient Chambourcin grapes to produce 849 cases. Sixty percent of the wine was fermented on the skins and aged in American oak barrels for six months. The other 40% was fermented by a thermal vinification process. Approximately 63% of the thermally vinified portion was aged in American oak for nine months while the remainder was held in stainless steel until blending. At bottling, the wine had a TA of 0.70 and 0.25% r.s.

Braganini believes that Chambourcin, which is a lighter red than Chancellor has excellent promise. "The American consumer is asking for lighter-styled, soft, dry, flavorful red wines," he maintains. "Chambourcin fills the bill."

Viability of vinifera

Because of limited Chardonnay plantings within the Lake Michigan Shore AVA, St. Julian was able to release only 80 cases of 1989 Chardonnay. Grapes were purchased at the premium price of $1,500/ton. To make a small profit, it must be sold at $14/bottle.

"It's impossible to grow vinifera on our southeast Michigan site," Guest contends. "Each winter, temperatures in our vineyards are -10°F at least once or twice. They reach -18°F to -20°F at least once every five years. In the last five years, we've had minimal snow depth."

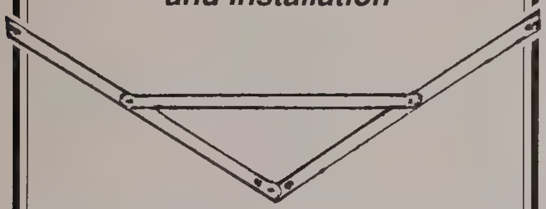
In 1982, with the intent of 100% vinifera production, Jim Eschner started Eschner's Vinifera Vineyards. In 1987, with partners Jim Lester and Bernie Lickteig, they started Madron Lake Hills Winery near Buchanan with a 5.3-acre vineyard originally planted to Chardonnay, White Riesling, and Gewürztraminer. Another 15 acres was planted in 1988 and 1989.

"Vines have survived winter kill through clonal selection, proper rootstock (3309, 5-BB, 5-C, SO4, 1613-C, 1616-C, and XG), and utilizing two to three trunks/vine," Eschner reports. "To date, results with these rootstocks have not been very conclusive."

While the vines have survived winter temperatures of -15°F after the vinewood hardened, controlling disease at this high humidity site is a distinct problem. In 1989, a 30% loss of a White Riesling crop to blackrot was a reality. A Japanese beetle infestation in summer 1990 wreaked havoc on vine leaves.

Tabor Hill Winery views its 41-acre site as a little warmer in summer than the Champagne region of France and similar to Chablis. "Every year Chardonnay reaches 20° Brix by mid-September," reports Moersch. "The later it's pushed back, the greater the chance we have of losing it to late-September rains.

"Although we've been producing a partially barrel-fermented Chardonnay with



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the Lake Michigan Shore Appellation, we've decided that sparkling wine is the way to go."

To expand this focus in 1990, Tabor Hill produced 1,000 cases of a *méthode champenoise* Pinot noir/Chardonnay blend for a proprietary 'Grand Mark' label. The Chardonnay was picked at 18° Brix and the Pinot noir at 19° Brix.

The original voice of vinifera in Michigan is Chateau Grand Traverse owner Ed O'Keefe. He has convinced investors to add approximately 50 acres to his producing 40-acre vinifera estate vineyards on the Old Mission Peninsula.

O'Keefe's producing acreage includes about 24-acres Riesling, 10-acres Chardonnay, 4.5-acres Gamay, 1-acre Merlot, and about 2-acres of experimental varieties.

"Michigan will not be recognized as a serious wine producer until we have at least 2,000 acres of vinifera planted," O'Keefe states emphatically.

Research efforts

Wineries, in general, credit the Horticulture Dept. of Michigan State University (MSU) for encouraging more growers to grow wine grape varieties, including vinifera.

"Historically, MSU discouraged the planting of vinifera and has begun to change, only recently, says Jim Eschner. "This is one of the reasons that Michigan has lagged behind New York and other eastern states in the development of vinifera vineyards."

"The experimental winemaking is beneficial," Welsch believes. "MSU's Foch Rosé experiments gave Fenn Valley its Rosé program."

MSU has investigated the use of oak chips and the importance of French oak barrels. Most wineries purchase French oak barrels to broaden the complexity of wines, especially with hybrids like Vignoles.

Rootstock research, experimental clonal plantings, and irrigation studies have also paid off.

With respect to trellising and vine training, although MSU has conducted broad research, most wineries are experimenting and retrofitting when needed. The jury is definitively out on a best system for a particular varietal, whether hybrid or vinifera.

"A multiple trunk system is Finger Lakes' (New York) mentality," maintains Leelanau Wine Cellars winemaker Bill Skolnick. "That region doesn't get much snow and we do." Many growers disagree. A few are still hedging their bets.

Growth prospects

While Michigan vineyards are thriving, northern Michigan's tart cherry industry is not so succesful. Many cherry orchards are for sale, particularly on the Leelanau Peninsula. "A really good tart cherry site could have the potential to be a good vineyard site," Simpson of Good Harbor reports.

"The better vineyard sites benefit from greater heat summation that comes from being slightly inland from Lake Michigan."

Simpson recently formed a company to aid prospective vineyard development. Using Chardonnay as the example, he has projected development costs (exclusive of land, taxes and interest) for the first five years at $9,836/acre. Income in years three to five from the sale of grapes is estimated at $5,300. This leaves out-of-pocket expenses for the

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Projections are for a vineyard spaced 9.5 x5.5 and planted with red or white vinifera on rootstock. The estimates assume that machinery is rented at $20/hour and labor to operate the machinery costs $10/hour. Simpson offers the following outline detailing the state's principal grape varieties, average yields, and current price paid:

Varietal	Average Yield (T/A)	Current Price ($/T)
Chardonnay	1.5 - 3.5	1,000 - 1,500
Riesling	2.0 - 4.5	850 - 1,000
Pinot noir	1.2 - 2.5	900 - 1,200
Gamay	1.5 - 3.5	800 - 1,000
Pinot gris	1.5 - 3.0	800 - 1,000
Lemberger	2.0 - 3.5	800 - 1,000
Vignoles	3.5 - 6.0	450 - 525
Seyval	3.5 - 5.0	425 - 475
Marechal Foch	3.5 - 5.0	425 - 475

Marketing concepts

"We'll continue to make a Chablis-like Chardonnay because that's the style we can do well," Moersch affirms. "Together with Riesling, it's our fishing lure in the marketplace. It also appeals to regionality which is a current market phenomenon. A good wine list should represent different regions of the U.S.

"Our offering will be a steely, crisp Chardonnay. When Mr. Businessman visits Chicago or Detroit and finds it on a wine list, his curiosity is heightened."

However, most producers confirm that the hardest frontier to crack is Michigan's finer restaurants, especially those in Detroit and the affluent northern Detroit suburbs.

"We want to place a major percentage of our annual 25,000-case production in large chain stores," Leelanau Wine Cellars winemaker Bill Skolnik states. "If you have good hybrid grapes and you blend, you can make a flavorful wine selling for $5 to $6 retail and maintain excellent cash flow. This will support the premium end of production."

St. Julian Winery has adopted four-color labels for all its varietals. "If you don't look like you're worth it, no one will try your wine," Braganini claims.

Good Harbor has had major consumer recognition for color labels designed by local artists, starting in 1985 with the proprietary Trillium (a semi-dry blend of Seyval, Vignoles, Vidal, and Riesling).

Like Tabor Hill, Fenn Valley has chosen to market proprietary names. "This is a name-oriented market," Welsch stresses. "I'm not going to fight the hybrid name battle anymore."

"Although many wineries are hesitant to make this statement, dry-style Michigan wines are still a hard sell," Simpson reports. "Sweeter wines outsell dry about 20 to 1. I produce Riesling, but it sells because it's semi-dry with 1.5% to 2% residual sugar."

The other side of this coin is the success of Chateau Grand Traverse with a bone-dry Riesling. 1990 bottling was 4,032 cases of semi-dry and sweet estate wine and 3,190 cases of dry estate wine. "We didn't aim our marketing principally at Michigan for many years," winemaker Mark John-

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son contends. "We concentrated our marketing efforts in Illinois, California, and Minnesota with success. Today, most of our sales are in Michigan."

Economic viability

"Where pricing is concerned, we're limited by the marketplace perception of Michigan wines," Guest claims. "However, out-of-state visitors find our winery. They're well-travelled and are intrigued by regionality. It's a sophistication level that's not grassroots, but is heightened because Michigan has built its tourism industry."

Only 3% of the wine drunk in Michigan is Michigan wine. "With these statistics, our biggest stumbling block is getting Michiganders to drink Michigan wine," Lemon states. "There has been insufficient emphasis on getting Michigan wines in front of the public."

"Michigan Chardonnay, at $14 and higher, can't compete nationally," Braganini emphasizes. "Some of it will sell as a novelty. Riesling has the most potential. It may not have the prestige of Chardonnay, but it is the best vinifera.

"Selling Michigan Chardonnay at these prices does test the grassroots loyalty of Michiganders," Skolnick remarks.

On the flip side of this marketing coin, Madron Lake Hills Winery sells out of Chardonnay for $18/$20 retail with repeat sales. "We believe that southwest Michigan can compare with the best regions of the world," says Eschner. "Our wines are not flukes or lucky attempts, but are built on the high quality fruit grown in our unique region. Our $18/bottle Chardonnay does not sell as a novelty, it sells because it's in the bottle.

"I believe most Michigan winemakers set their sights maybe too low. If they don't believe that they can produce world-class wines that can stand proudly among the best – then they can't.

"I believe the future for Michigan is quality and not just ordinary quality in the 'fighting varietal' market, but the super and ultra-premium end of the market. If your vineyard site has the potential for great wine and you are content to produce ordinary 'good' wine, then the best use of resources is not being made."

Michigan Wine Council

In October 1985, the Michigan Grape & Wine Industry Council (MGWIC) was established through legislative action to provide research, education, and promotion for Michigan grapes and wines. In the five years since its inception, its chief focus has been increased awareness and the creation of new markets for Michigan wines.

The biggest success of MGWIC has been the 'Discover Michigan Wines' campaign begun in 1988. The target audience is the 25- to 34-year-old, college-educated, high-income consumer, shown to be the primary wine purchaser by an American demographics report.

Various campaign materials, including window displays, shelf-talkers, table tents, menu clips, and bottleneck tabs are available for wineries to distribute to key accounts.

The MGWIC has a full-time representative travelling the state to promote the 'Discover Michigan Wines' campaign

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among retailers and restaurateurs, urging them to use available promotion materials.

The majority of Michigan's winery owners are concerned that 60% of an annual $350,000 budget is being used for the MGWIC employees. "When other overhead costs are tallied, that leaves only about $60,000 for marketing and promotion," Braganini maintains. "That's insufficient."

"I haven't found the secret of advertising," Guest affirms, "but we need a short, clear message that keeps bombarding the public."

Legislative concerns

Due to current production levels of Michigan wineries, only St. Julian Wine Company is impacted by the 1991 Federal Excise Tax (FET).

Braganini's additional concern is the Michigan Liquor Control Commission (MLCC) and the Michigan Attorney General's plan to eliminate a tax-break provision for wine production for Michigan-grown fruit included in the MLCC Act. An MLLC spokesperson indicates that this tax-break provision is unconstitutional because it discriminates against products from other states.

"It seems to me that we have a strong case to rewrite the Michigan rules to mirror the new Federal tax rules to the letter," Braganini says.

"If the MLCC were to adopt in total the new FET guidelines, we couldn't possibly be unconstitutional. The reporting mechanism for determining a winery's total volume would already be in place, so the State of Michigan would incur no new documentation.

"Based on my research, very few under 42,000-case American wineries are now selling wine in Michigan. The State of Michigan stands to lose miniscule revenue by offering tax-exempt status to these wineries.

"Collectively, the Michigan wineries need this `use of Michigan fruit' tax break because we've built our industry around it."

Braganini has enlisted the support of all Michigan wineries to petition the MLCC and the Attorney General to hold off action until June 30, 1991. At that time, the FET reporting mechanism will be in place and will allow assessments of Braganini's proposal on Michigan's wine tax revenue.

According to Braganini's estimates, St. Julian Wine Company would owe an additional $85,000 to the State if the 'use of Michigan fruit' provision were eliminated.

August and September fogs along Lake Michigan hasten the development of fungal diseases. "I'm concerned about potential governmental pull of several fungicides," Welsch says.

Bright Future

Michigan's wine industry has had its downside. In the past two years, two producers with sizable production shut their doors.

The past five years have witnessed a few exceptionally promising harvest hopes dashed by September rains or early frost.

In general, however, the vintner's enthusiasm remains high. Growers have been challenged to plant more acres of wine grapes. Vineyard investments are attractive and Michigan's wine industry is a bright source of fiscal optimism. ■

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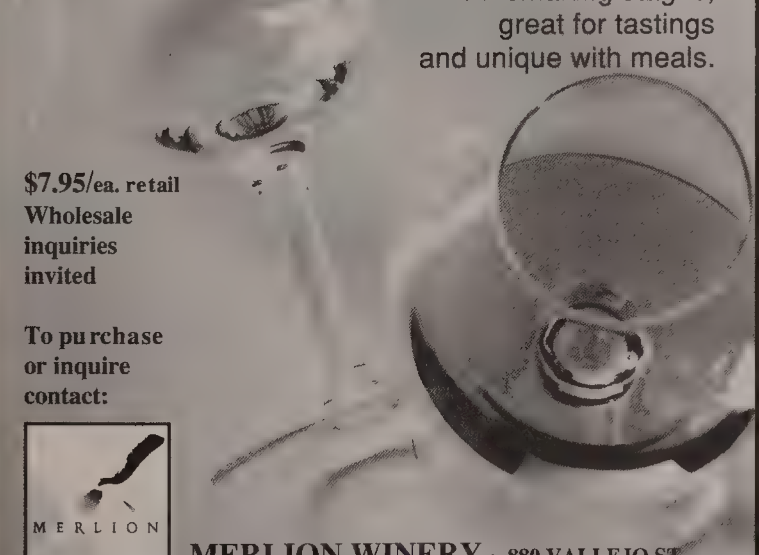

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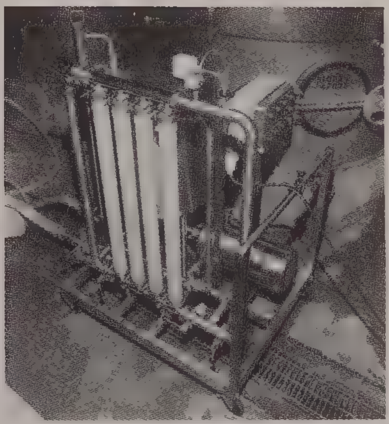

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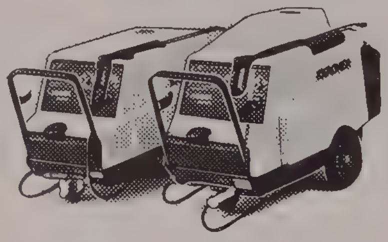

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FREE RUN continued from page 4

or less acreage will be replanted; 19% expect 20%; and 10% expect 30% acreage.

What percentage of replanting will be due to phylloxera infestation?

In 1991, 96% predict 10% or less. Between 1991 and 1993, 85% expect 10% or less.

Do you expect the cost-per-ton of purchased grapes to increase or decrease from 1990 levels?

For Chardonnay, 55% of producers said costs would increase in 1991, 30% said they would decrease, and 15% predict no change. Chardonnay costs in 1992 will increase, said 40% of producers; will decrease, said 36%; and will not change, said 24%.

For Cabernet Sauvignon in 1991, 54% of producers predict cost increases, 32% see no change, and 14% forecast a decline. For 1992 costs, 56% predict increases, 26% see no change, and 18% forecast a decrease.

For all other grape varieties averaged together in 1991, 43% of producers predict cost increases, 32% see no change, 24% predict a decrease. For 1992 costs, 41% predict increases, 32% see no change, and 28% forecast a decrease. ■

Complete results of the Deloitte & Touche Winery Financial Survey are available to participating wineries only. For additional information on the survey, call: Wine Industry Service Partners Jon Dal Poggetto, 707/545-3311; or Mike Rudy, 415/273-2300.

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Ironically, franchise laws are not really for protection of the 'middle tier.' Their purpose and effect are to shield those businesses that are already in the middle tier from potential competitors, by making it difficult for a producer to appoint a distributor on a trial basis. They tend to close the door on new entrants to the distribution business, which small- and medium-size wineries certainly need.

In any case, nowadays one must have a set of different distributor contracts, with carefully drawn termination clauses tuned to the law of the state in which the wholesale customer is located. Be sure to consult your legal adviser before renewing any distributor agreement or adding a new distributor. ■

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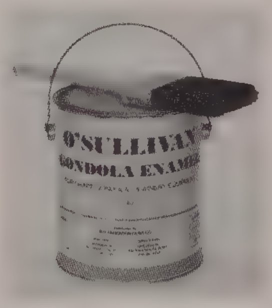

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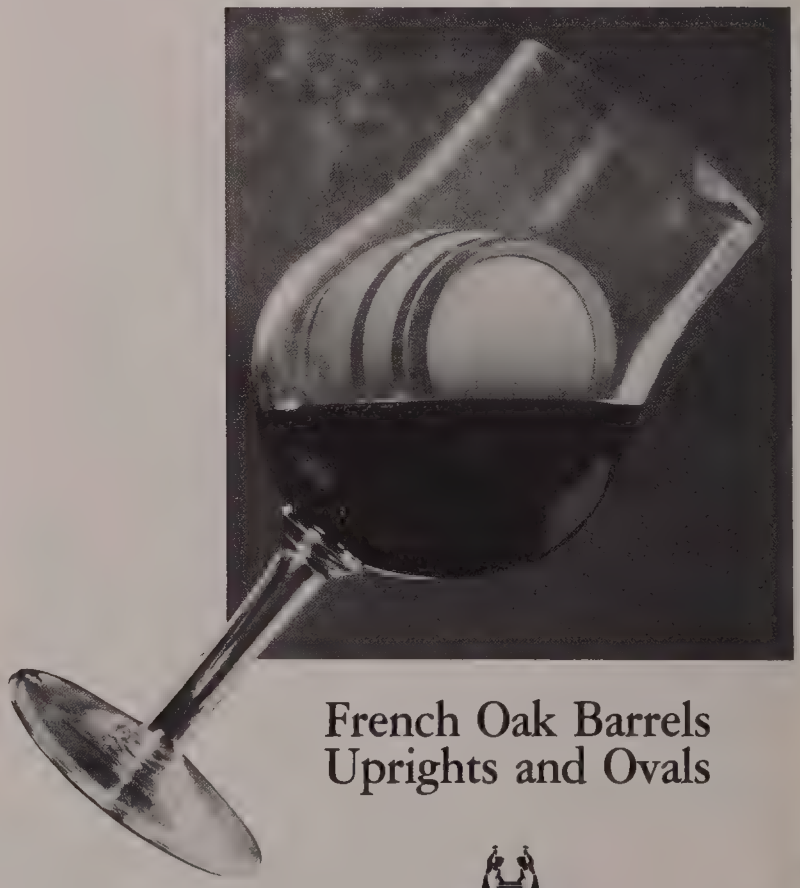

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Red Wine Production Shortcourse — sponsored by the Central Washington Wine Technology Group. Speakers include: Paul Pontallier (Chateau Margaux, France), Justin Meyer (Silver Oak Winery, CA), Jed Steele (Kendall-Jackson Winery, CA), and Dr. Ralph Kunkee (UC Davis). **Location:** Holiday Inn, Yakima WA. **Inquiries to:** Dave Crippen, tel: 509/829-6235 or Dr. Charles Edwards, tel: 509/786-2226.

Grapegrowing/Winemaking Courses, University Extension, UC Davis, CA

NOV. 2 - 9, Saturdays — Introduction to Wine Chemistry designed for people with a winemaking background but no formal training in wine chemistry. The program provides insights into the interplay of chemical reactions that occur in wine and in winemaking. First Saturday examines basics about acids; sulfur dioxide in wine; and crush chemistry. Second Saturday concentrates on fining and stabilization reactions, and spoilage and its treatment. **Location:** UC Davis. **Instructor:** Clark Smith, consulting winemaker. **Time:** 9am - 4:30pm. **Fee:** $120.

NOV. 14, Thursday — Exporting California Wine: Markets and Mechanics. Introduces winery managers to mechanics of exporting wine and to review potential markets. **Location:** El Rancho Tropicana Hotel, 7200 Santa Rosa Ave., Santa Rosa, CA. **Instructor:** Fred Klose, Agricultural Export Program, Calif. Dept. of Food & Ag. **Time:** 9am - 4:30pm. **Fee:** $90 (includes lunch.)

NOV. 18, Monday — Out-of-state compliance: Legal requirements for shipping out of state. Reviews regulations and paperwork required to ship wine to other states. You will obtain an understanding of state requirements, a list of the right questions to ask (and who to ask), and a 250-page manual. **Location:** St. Supery Winery, 8840 St. Helena Hwy, Rutherford, CA. **Instructor:** Andrea Anderson, compliance consultant. **Time:** 9am - 4pm. **Fee:** $120 (includes lunch.)

NOV. 19, Tuesday — Winery financial planning and modeling, using a computer. Program focuses on the planning process and assumptions of each step in the process of creating sales and income forecasts, accounting for cost of goods sold and operating expenses to create a projection of gross margin, and how to use that information to develop cashflow projections, profit/loss statements, and funding needs with a series of linked spreadsheets using LOTUS 1,2,3. Copies of instructor's spreadsheet templates will be available at nominal cost. **Location:** St. Supery Winery, 8840 St. Helena Hwy, Rutherford, CA. **Instructor:** George Schofield, George Schofield Associates, St. Helena, CA. **Time:** 9am - 4pm. **Fee:** $130 (includes lunch).

NOV. 21, Thursday — Taxation and accounting for the small vineyard. Topics: formulating a business plan, choosing the form of doing business, and estate planning. Course follows the accounting for a vineyard operation from start-up through land clearing, planting, preproductive and productive stages. Tax aspects and specific accounting techniques will be discussed. **Location:** UC Davis. **Instructor:** L. Gregory Scott, tax partner, Price Waterhouse Accountants, Oakland, CA. **Time:** 9am - 4pm, **Fee:** $120 (includes lunch + materials).

NOV. 22, Friday — Taxation and accounting for the small winery (60,000 cases and under). Topics: pros/cons of incorporation and Subchapter-S status, determining cost of goods sold, inventory valuation and costing, pros/cons of electing LIFO, accelerating deductions through farm accounting procedures, depreciation methods, fringe benefits, and estate planning. **Location:** UC Davis. **Instructor:** L. Gregory Scott, (see previous course). **Time:** 9am - 4pm. **Fee:** $120 (includes lunch + materials).

DEC. 3, Tuesday — Winegrape Pest Management. An update for PCAs and vineyard owners offered every two years includes current research and information on diagnosis and management of disease and insect pest problems in winegrapes. **Location:** Veteran's Memorial Building, 203 E. 14th St., Davis, CA. **Instructor:** James Wolpert, viticulture specialist, Dept. of Viticulture/Enology, UC Davis. **Time:** 9am - 4pm. **Fee:** $85 (includes box lunch).

DEC. 7, Saturday — Introduction to Wine Analysis designed primarily for home winemakers. Covers the following crucial tests: free and total SO_2, volatile and titratable acidity, pH, malolactic paper chromatography, sugar, and percent alcohol. Participants should bring several 750mL samples of their own wines or samples wines will be provided. **Location:** UC Davis. **Instructor:** Bob Bertheau, enologist, Chalk Hill Winery, Healdsburg, CA. **Time:** 8am - 5pm. **Fee:** $120.

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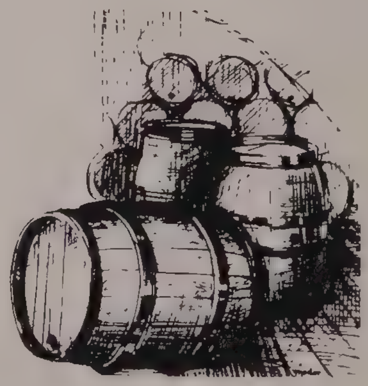

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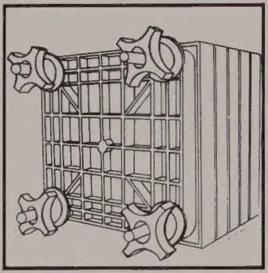

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